

# FLIGHT

The  
AIRCRAFT  
ENGINEER  
&  
AIRSHIPS

First Aero Weekly in the World.

Founder and Editor : STANLEY SPOONER

A Journal devoted to the Interests, Practice, and Progress of Aerial Locomotion and Transport

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## Flight

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## EDITORIAL COMMENT.



### The Cabinet Deceives Itself

It must have been a piteous sight to have seen Mr. Baldwin and the members of his Cabinet on Monday when they opened their respective *Daily Mails* and realised how ignominiously they had deceived themselves in thinking that they had decided upon the relationship of the Admiralty and the Air Ministry. Most folk, including a goodly proportion of the Naval enthusiasts, were at one with Mr. Baldwin and his explanation, and the disappointment therefore that the whole thing is in flux again will come as a shock. For is it not writ large in leaded type thus: "As the principal duties of the Fleet Air Arm are bound to be entrusted to naval officers, why have any further controversy? The Government's decision will have to be reversed, for the Eyes of the Fleet must be solely under naval control."

Therefore, having been notified of this decision, Mr. Baldwin please, without waiting for that promised autumn debate, take it quietly and throw over the very lucid and convincing report upon which the Cabinet's decision was based, thus saving Parliament's time and tribulation. Poor Mr. Baldwin has our entire sympathy, but it is hardly worth kicking against the inevitable.

For ourselves we are content to let the matter rest where we left it last week in our leader columns. If we had had the Committee's report before us, we could hardly have hoped to have given a better forecast of the main conclusions arrived at. In the very few details which are elaborated in the report the equivalents of some of our points are definitely suggested, and we feel that the Premier and the Cabinet as a whole are to be heartily congratulated upon having grasped the nettle firmly, even if part of their grasp may be so gloved as to appear to be calculated to minimise any irritation arising from the necessary compromises upon minor and non-weight carrying points of controversy which it has been deemed helpful to offer.

As a matter of record we reproduce elsewhere the entire report in all its essential features on pages 477-479.

### DIARY OF FORTHCOMING EVENTS

Club Secretaries and others desirous of announcing the dates of important fixtures are invited to send particulars for inclusion in the following list :—

- Aug. 3-14 Rhön Gliding Competition
- Aug. 6-27 French Gliding Competition, near Cherbourg
- Aug. 8-12 F.I.A. Conference, Gothenburg.
- Sept. 28 ... Gordon Bennett Balloon Race, Belgium
- Sept. 28 ... Schneider Cup Seaplane Race at Cowes
- Oct. 4 ... R.Ae.S. Inaugural Lecture
- Oct. 8-13 Light Plane and Glider Competitions, Lympe
- Oct. 14 ... Beaumont Cup Race at Istres, France
- Oct. 18 ... "The Manœuvres of Inverted Flight," by Sq.-Leader R. M. Hill, before R.Ae.S.
- Nov. 1 ... "Present Developments in Aircraft Instruments" by Major Wimperis, before R.Ae.S.
- Nov. 15 ... "The Thermodynamics of Aircraft Engines," by Mr. H. R. Ricardo, before R.Ae.S.
- Dec. 1 ... Entries close for French Aero Engine Competition

1924

- Mar. 1 ... French Aero Engine Competition.

## The Aerial Derby

Once more the Aerial Derby has been flown, and once more it has been won by a Gloucestershire Aircraft Company machine, with Napier "Lion" engine.

Thus for three consecutive years this combination has gained the victory, performing the "hat trick," which must be considered a remarkable achievement, and of which those responsible for its successful termination may be justly elated. It is of considerable interest to note the way in which the speeds have crept up. In 1921 Mr. J. H. James on his Napier-engined "Mars I" averaged 163.34 m.p.h. On the same machine, "cleaned up," the same pilot attained an average of 176.48 m.p.h. in last year's Derby, and this year the speed was increased, by Larry Carter, the Gloucestershire Aircraft Company's new test pilot, to 192.4 m.p.h. That the Napier "Lion" engine has been able to stand up to the gruelling test of running at full power for a distance of 200 miles without a hitch has probably not come as a surprise to those intimately acquainted with this engine, whose reputation has by now been firmly established, not only for service and racing purposes, but also, and what is, perhaps, even more remarkable and important, for commercial work.

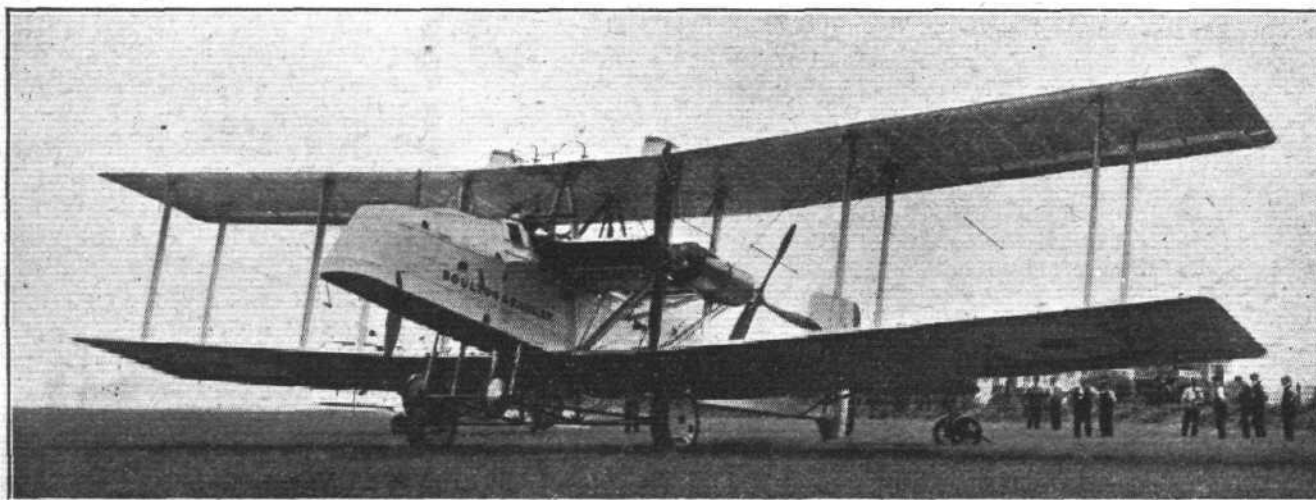
That the Gloucestershire machines have succeeded in keeping ahead of all competitors in point of speed, and have for more than three years been definitely proved the fastest possessed by Great Britain, is evidence of the designing skill of Mr. H. P. Folland, and is, moreover, a tribute to the very sporting spirit of those responsible for the policy of the Gloucestershire Aircraft Company. To continue to build racing machines year after year, and to enter them for international events both at home and abroad, is necessarily a costly business, and it is, therefore, gratifying to think that at last some small direct reward will be reaped by this enterprising firm through the purchase, by the Air Ministry, of the winning machine—*sans* engine—for £3,000. Not that this amount will compensate the firm for the money expended on full scale experiment on fast machines during the last few years. It will not. But it will go some little way towards it, and in placing orders with aircraft firms during the present financial year, the Air Ministry should, having regard to national

interests, keep in mind the pioneer work that has been carried out.

As we have repeatedly pointed out, in America much more direct assistance is given by the Government to designers and constructors of fast aircraft, orders being definitely placed for such with the private firms that have proved themselves capable of producing really effective machines. So far that policy has not been imitated in this country, and the promise to purchase the British machines winning the Derby and Schneider Cup races goes but a short way towards ensuring adequate participation by Britain.

There is, however, another way in which the Air Ministry can encourage the designers of high-performance machines. Very large sums were voted in this year's Air Estimates towards the purchase of new machines, and so far as can be gathered, the orders so far placed do not come anywhere near representing the amounts available. Surely, then, here would be an opportunity of supporting, in the most practical manner of all, firms which have done well in the production of fast machines, and we suggest that in the placing of orders due and immediate consideration should be given to the services to the country and to British technical supremacy which such firms have rendered. It is not yet too late to place orders for machines to be constructed during the present financial year, but if action is not taken at once, it will be too late, with consequences which may easily be serious.

With regard to the Aerial Derby itself, it should be stated that the organisation was excellent. The method of keeping the spectators informed was effective, the "lines of communication" worked well, the catering facilities were, if not perfect, at any rate reasonably good, and, most important of all, we were lucky in having not a single accident of any kind to record, although some of the competitors had to land *en route*. Merely by way of countering the possible effect of one evening contemporary's action, which went off the deep end on the Air Derby day by placarding the town with "Mishap to Air Derby Pilot" (or words to that effect), we might mention this ghastly happening was a spill the day before on a motor-bicycle of one of the entered pilots, who had in consequence to "scratch."



**THE BOULTON AND PAUL "BODMIN" :** This machine has several very interesting features, chief of which is the central placing of the engines (Napier "Lions") in the fuselage, with drive to four propellers mounted between the planes.



# THE EIGHTH AERIAL DERBY

## Fine Weather and Good Racing

GLORIOUSLY fine weather had been obtained by the meteorological section of the Air Ministry for the Aerial Derby on Monday, August 6 (Bank Holiday). So much so that at no time did there appear to be any danger of a change, and the crowds, with touching faith in the Meteorological Office, turned up in enormous numbers. We have no information

R.A.F. gave selections from their repertoire, and altogether visitors had plenty to keep them amused in the intervals between machines starting. Shortly after Mr. Woodhouse had left, a Gloucestershire "Mars VI," with Bristol "Jupiter" engine, came out and gave an exhibition of stunt flying. The climb of this machine is phenomenal, and in the hands of



THE AERIAL DERBY, 1923 : A general view of one small section of the crowd at Croydon Aerodrome.

relating to the actual "gate," but to us it seemed one of the largest crowds ever assembled at the Waddon aerodrome.

Promptly to time the first man ("A. T. Renno," which pseudonym covered the identity of Dr. Whitehead Reid) was flagged off by our old friend Reynolds, Hinkler following second a few minutes later. Then left, in the order of their handicaps, the remaining competitors. Thirteen machines were due to start, but one, No. 5, which was to have been flown by its owner, Mr. Thomas, was scratched, Mr. Thomas having sustained, on the day before, damage to his knee which prevented him from flying.

In the enclosures the bookmakers were busy, and were, apparently, doing good trade. The Central Band of the

Flying Officer John S. Chick, M.C., the "Mars VI" gave the onlookers a very fair idea of why single-seater fighters have to be manœuvrable, and, incidentally, also why they have to be strongly built. It is useless for us to attempt to describe the performance. No words could convey the perfect mastery of rhythm and movement which the loops, rolls, Immelmann turns, spins, etc., suggested. A favourite trick was to start a loop quite near the ground, and then, when the machine had zoomed to the top of the loop some 400 ft. higher up, to roll it sideways out of the loop so that the machine commenced to fly level without having lost any appreciable height.

While the Derby machines were being despatched, a large number of Bristol Fighters were being collected and gradually

### RESULTS OF EIGHTH AERIAL DERBY AND HANDICAP

Pilot.	Starting Time.	First Circuit.	Lapsed Time.	Speed.	Finish.	Lapsed Time.	Speed.	Total Lapsed Time.	Average Speed.	Handicap Time.	Place.
	h. m. s.	h. m. s.	h. m. s.	m.p.h.	h. m. s.	h. m. s.	m.p.h.	h. m. s.	m.p.h.	h. m. s.	
"Renno"	1 45 0	3 21 45	1 36 45	62	4 36 34	1 14 49	80	2 51 34	71	2 51 34	9
Hinkler	1 56 48	3 5 30	1 8 42	87	Down at Hounslow.						
King ..	2 7 45	3 18 15	1 10 30	85	4 35 36	1 17 21	78	2 27 51	86	2 40 36	7
Woodhouse	2 10 3	3 15 10	1 5 7	91.5	4 21 4	1 5 54	91	2 11 1	91.25	2 36 4	3
Thomas	Non-starter.										
Hamersley	2 29 24	3 24 10	0 54 46	110	4 19 20	0 55 10	109	1 49 56	109.5	2 34 20	1
Raynham	2 42 9	3 33 0	0 50 51	118	4 22 14	0 49 14	122	1 40 5	120	2 37 14	4
Hemming	2 43 1	3 34 25	0 51 24	117	Down at Romford.						
Perry ..	2 47 8	3 33 30	0 46 22	130	4 20 48	0 47 18	127	1 33 40	128	2 35 48	2
Courtney	3 0 25	Down at Brooklands.									
Barnard	3 2 25	3 43 34	0 41 9	146	4 23 46	0 40 12	150	1 21 21	148	2 38 46	6
Longton	3 13 58	3 50 0	0 36 2	167	4 27 7	0 37 7	162	1 13 9	164.5	2 42 7	8
Carter ..	3 21 2	3 51 42	0 30 40	195	4 23 25	0 31 43	190	1 2 23	192.4	2 38 25	5

sent across the aerodrome to take up the positions being vacated by the racers. These Bristol Fighters were to be flown in the race for the Air League Challenge Cup, presented by Major-General Sir W. Sefton Brancker, K.C.B., our popular Director of Civil Aviation, and Mr. Philip S. Foster.

started to plot-in courses on the maps, one of our photographs depicting one such incident.

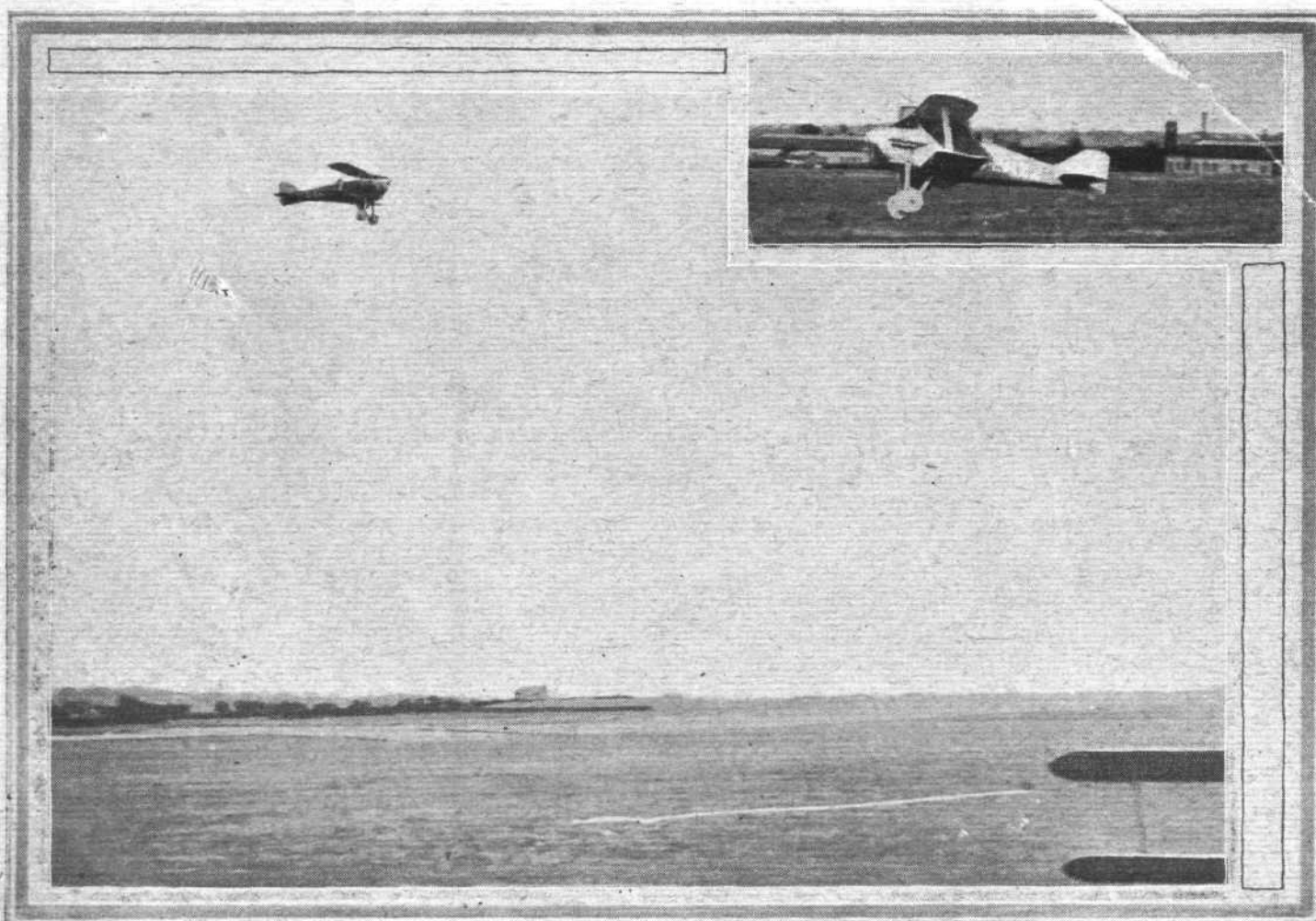
In the meantime all the Derby competitors had been sent off, with the exception of the last two, Longton on the Sopwith-Hawker, with Bristol "Jupiter" engine, and Larry



**THE "GLOSTER":** A side view of the Gloucestershire Aircraft Company's world's record speed machine "Gloster," which won the Aerial Derby last Monday. A front view of this aeroplane appeared last week exclusively in "Flight." The engine is a 450 h.p. Napier "Lion."

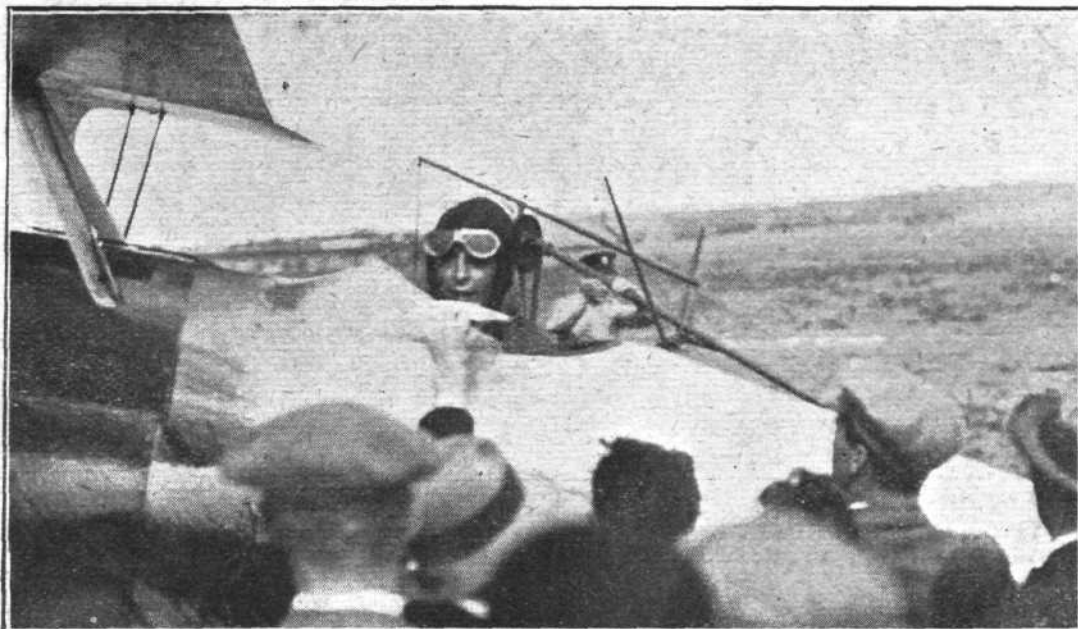
This cup is competed for annually by units from the various air stations, and the holders up to Monday were R.A.F. Kenley. The course to be followed was not announced until one hour before the start, when the 15 teams were informed that the turning points were to be Halton, near Windover, Hertford, and West Thurrock. At once preparations were

Carter on the "Gloster," with 450 h.p. Napier "Lion." Just as Barnard left on the D.H.9, with Napier "Lion" engine, a machine was seen to be approaching the aerodrome from the general direction of West Thurrock, and speculation was rife as to which of the competitors it would turn out to be. As he came closer it became obvious that it was one of the smaller



**THE AERIAL DERBY, 1923:** The winner, Mr. L. L. Carter, finishing on the "Gloster" (450 Napier "Lion") at a mean speed of 192.4 m.p.h. Inset, on the right, the "Gloster" is seen starting.





Mr. L. L. Carter, the pilot of the Aerial Derby winning "Gloster," immediately after "coming to earth." Both he and his machine, as may be noticed, were smothered with oil from a leaking oil pipe.

"buses, but not until he was nearly over the aerodrome was it possible to determine definitely that it was Hinkler on the Avro "Baby," with 35 Green. He crossed the line at 3 h. 5 m. 30 s., having taken but 1 h. 8 m. 42 s. to cover the 100 miles, which corresponded to a speed of 87 m.p.h. This was distinctly good going, and Hinkler was loudly cheered (pity he could not hear it) as he left for the second circuit. He had gained time, and appeared to be well in the running for the handicap. Great was therefore the disappointment when news came through over the wireless that he had had to abandon the race and had landed at Hounslow.

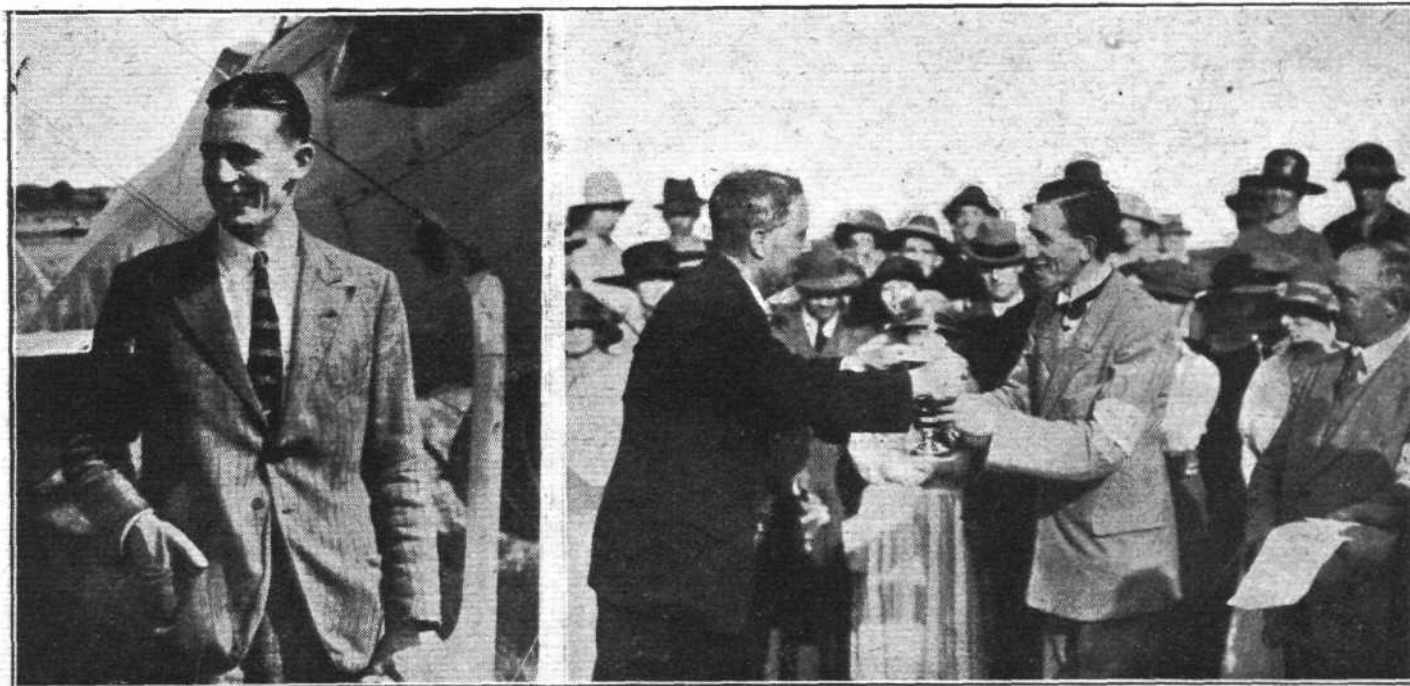
Longton got away in fine style on the Sopwith-Hawker, whose speed was evidently quite high. The machine seemed very steady in the air, and in spite of its small wings did not require a long run to get off. Shortly after Longton had got away Woodhouse crossed the line on the Boulton and Paul P.9, followed about 3 minutes later by King on the Sopwith "Gnu."

At 3.21.2 the flag dropped for Larry Carter, and the

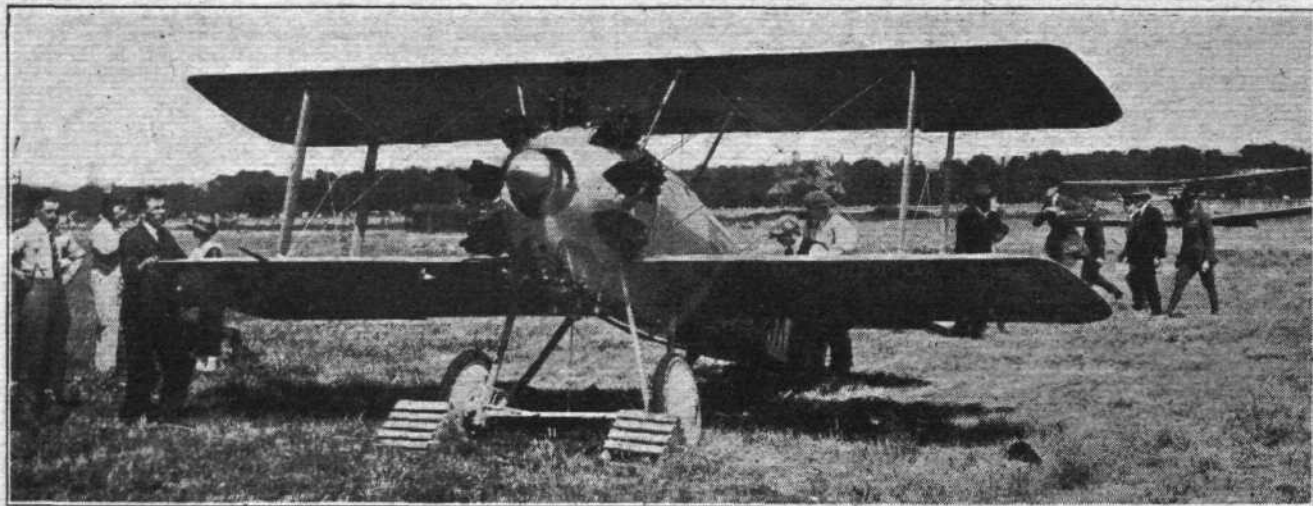
"Gloster" roared off, going at a terrific pace as it skimmed low over the heads of the spectators in the enclosures. No sooner was the scratch machine away than the S.E.5, with 80 Renault, crossed the line. It had been generally thought that Dr. Whitehead must have abandoned the race, and there was general satisfaction when it was found that he was still "sticking it," in spite of the fact that he was obviously losing ground.

The next man to cross the line after completing the first lap was Hamersley on the Avro "Viper." His time worked out at 54 m. 46 s., so that he had been lapping at 110 m.p.h., which seemed to give him a very good chance in the handicap.

By way of an interlude, another Gloucestershire "Mars VI" came out to do amusing tricks, this time, one was informed, piloted by Flight Lieut. Rollo A. de H. Haig. The machine had not been in the air many seconds before it became quite obvious why the pilot had been christened Rollo. The "Mars VI" did roll-o with a vengeance, and sometimes it was difficult to see where a roll finished and a spin commenced.



**THE AERIAL DERBY :** On the left, Mr. L. L. Carter, the pilot of the 200 m.p.h. "Gloster," after the race, and on the right, Mr. D. Longden, on behalf of the Gloucestershire Aircraft Company, receiving the Cup from Lieut.-Col. Frank MacClean, in the absence of Mr. Carter, who had from sheer modesty mysteriously "disappeared," much to the regret of everyone. On the extreme right is Mr. H. T. Vane, whose Napier "Lion" engine was in the winning machine.



**RUNNING-UP THE SOPWITH-HAWKER-JUPITER FOR THE AERIAL DERBY:** A front view of this new speed machine appeared exclusively in "Flight" last week.

In the enclosures one heard some very complimentary things said both about the machine and about its pilot, and certainly the show put up by these two officers was worth the whole of the entrance fee charged for admission.

At 3.33 Raynham crossed the line on his yellow Martinsyde

wait of nearly 7 mins., when two machines hove in sight, the leading one of which proved to be Longton on the Sopwith-Hawker, who was followed across the line about 2 mins. later by Carter on the "Gloster," both machines "going strong."



**THE AERIAL DERBY:** The Sopwith-Hawker machine gets away. This 400 h.p. Jupiter-engined 'plane, piloted by Flight Lieut. W. H. Longton, was the second fastest over the course.

F.6, followed 30 secs. later by Perry on Colonel Darby's D.H.9 A. One minute later Major Hemming came along on D.H.37, but of Courtney there was not a sign. Later on it was learned that he had come down at Brooklands.

Barnard crossed the line at 3.43.34, and then there was a

People now settled down to wait for half-an-hour or so until the Derby machines should begin to come in, and in the meantime the Service Bristol Fighters had begun to go off at two minutes interval. This form of starting did not prove wildly exciting, and the visitors were more interested in

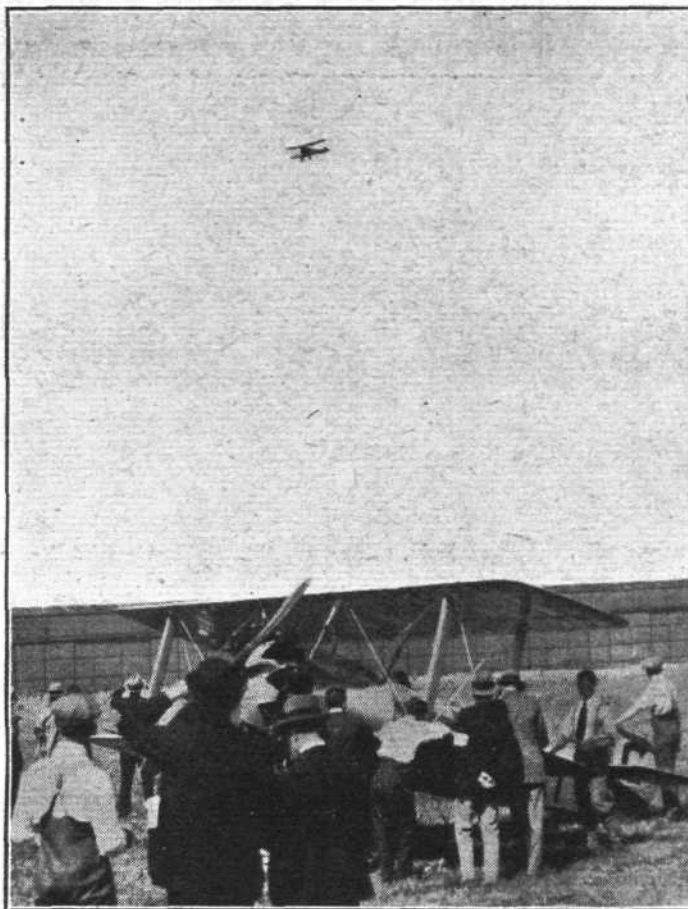


**Mr. H. H. Perry, who on the D.H.9a (350 h.p. R.R.) secured third place in the Aerial Derby Handicap, getting away.**



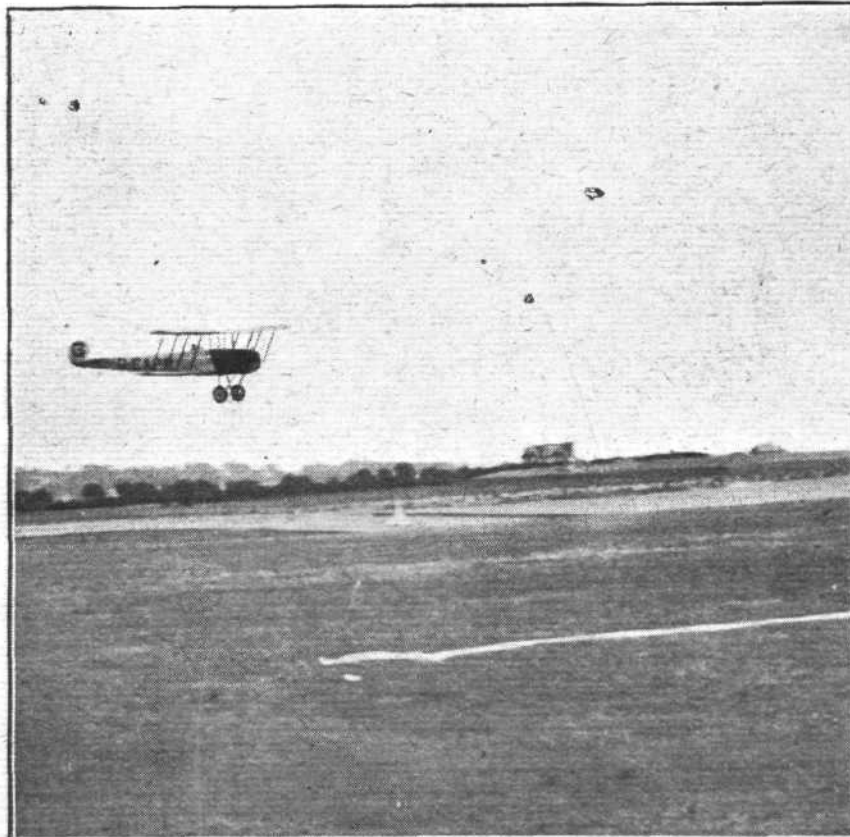
the aerobatics of "Roll-o' Haig," as he was soon nicknamed. The Gnosselius "Gull" had been promised as an attraction, but did not put in an appearance. It was afterwards learned that the machine had landed *en route* to Croydon, apparently with engine trouble. This was a great disappointment, as many had hoped to see this interesting machine in flight.

At this point it seems appropriate to insert a few notes relating to the organisation. The "scoring boards" in the enclosures had been kept very simple and plain, rather than attempt to make them too elaborate and consequently difficult to understand. As each competitor passed a turning-point the fact was wirelessed to the enclosure, when the announcement was made through a megaphone. Thus from Brooklands the passing-over of a competitor was, on the average, announced two minutes after the passing, which was very creditable indeed. From the other turning points also came reports, so that, on the whole, it was quite easy to follow the progress of the race. This fact was greatly appreciated, particularly by the Press, whose representatives have sometimes on previous occasions had some difficulty in obtaining reliable information. Although a certain number of Press representatives were permitted on the aerodrome, in order to take photographs, there was never a crowd, and at no time was there any risk of people getting in the way of machines. Everything went off smoothly, and the Royal Aero Club are to be congratulated on the organisation of this year's Aerial Derby.

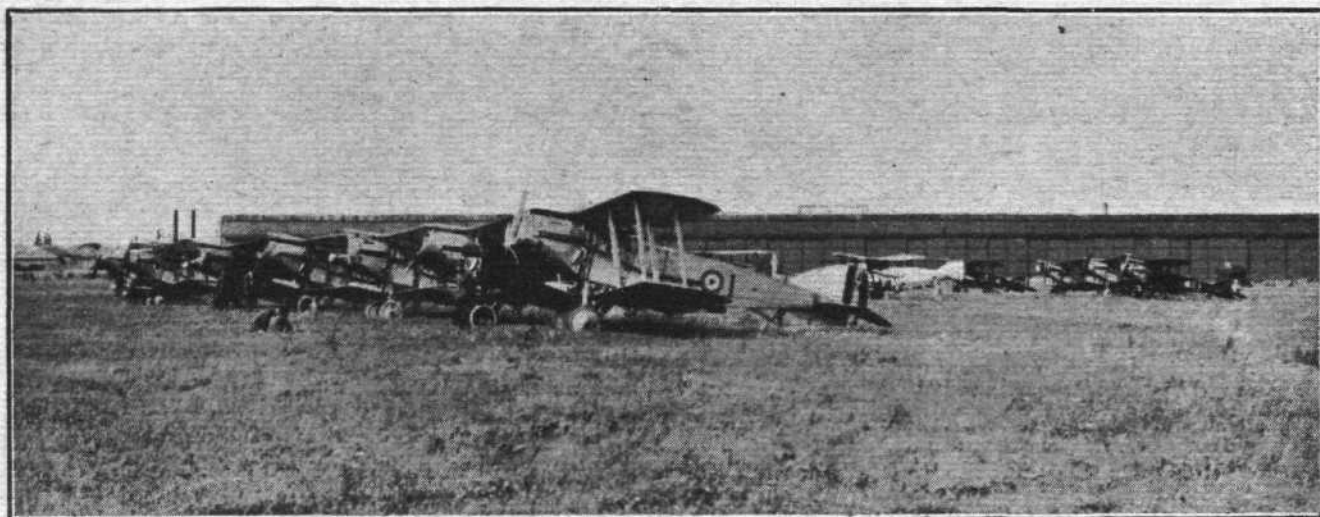


The Avro Baby passing Croydon on its second lap in the Aerial Derby, whilst below is the Sopwith-Hawker machine still awaiting its turn to start under its handicap time.

With this little digression—which appears to be called for, as we have on occasion felt obliged to criticise certain shortcomings in organisation—let us return to the meeting. Just as the last of the Bristol Fighters left the aerodrome the first two Derby racers hove in sight. For some time it was impossible to distinguish who was leading, and it was not until he was near the finishing line that it was possible to identify the leader as Hamersley on the Avro "Viper." It was then 4.19.20, and Hamersley was obviously the winner of the handicap. He was followed a little over a minute later by Perry on the D.H.9 A, and less than one minute after that again the third man home, Woodhouse on the Boulton and Paul P.9, crossed the finishing line. That settled the speculation as to the result of the handicap, but there was still the Derby to be decided, and as yet it was not known whether the "Gloster" or the Sopwith-Hawker would win. The latter machine was not thought to have anything like the speed of the "Gloster," but one never knew. At 4.23.25 all doubts were set at rest by Carter thundering across the line on the "Gloster," hailed with cheers from the crowds. After making a circle of the aerodrome Carter landed the winner at a terrific speed, but made a very good landing, although the machine ran along right up to the front of the enclosure before coming to a standstill. When Carter got out of the machine it was seen that he was smothered in oil from a leaky oil pipe, it was gathered, and he seemed pretty exhausted. And small wonder. It is no



THE AERIAL DERBY: Hamersley, the winner of the Derby Handicap, crossing the line on his Avro 200 Viper machine. On the right are Mr. A. V. Roe and Capt. H. A. Hamersley immediately after the race.



**FOR THE AIR LEAGUE CHALLENGE CUP RACE ON BANK HOLIDAY:** The Service Bristol Fighters (all 275 h.p. Rolls-Royce engines) lined up for the League Cup at Croydon before the start.

child's play to fly such a fast machine around a course for over one hour.

Longton crossed the finishing line at 4.27.7 and made an absolutely perfect three-point landing, the machine running but a very small distance after touching. He had put up a plucky fight, but was obviously out-distanced.

The wait for the result of the race for the Air League Challenge Cup proved a long one, and as the machines had

and £100 prize, presented by the Royal Aero Club, were duly presented by General Brancker. The second prize of £25, presented by Trust Houses, Ltd., was won by Longton, and the cup presented by the Royal Aero Club, and £100 presented by the Anglo-American Oil Company, was won by Hamersley as first in the handicap. The Royal Aero Club's second and third prizes of £50 and £25 were won by Perry and Woodhouse respectively. Raynham had the bad luck of having his

The Air League Challenge Cup for R.A.F. units: In this the 100 mile course was only disclosed one hour before the start. A quiet "snap" of Squadron Leader S. W. M. Green, D.S.O., M.C., plotting his course a few minutes after the receipt of his map.



been started at two minutes interval their order of arrival meant nothing. Ultimately it was announced that only three of the competitors had properly rounded the turning points, the others either going inside, or else so far outside that their numbers could not be identified. Of the three the best time was made by Flight Lieut. H. S. Shield, M.C., of R.A.F., Eastchurch, who thus secured the cup until next year. Second was Air Commodore H. C. T. Dowding, C.M.G., of Northolt, and third Flight Lieut. E. B. Rice, of Halton.

The presentation of the cups and prizes was somewhat delayed, owing to the impossibility of finding Larry Carter. Ultimately Mr. D. Longden, of the Gloucestershire Aircraft Company, had to officiate as "Ersatz," and the Derby Cup

engine cut out entirely on several occasions, and thus lost his chance of a place in the handicap.

A race like the Aerial Derby is a gruelling test for machine, engine and equipment, and it is of interest to note that the Napier "Lion" ran without a hitch the whole time. Incidentally it might be mentioned that this is the fifth Aerial Derby in succession which has been won by machines fitted with Smith's instruments and whose engine was fitted with K.L.G. plugs. Shell motor spirit and lubricating oil were used by the winner, and Shell spirit by the machines obtaining second and third place.

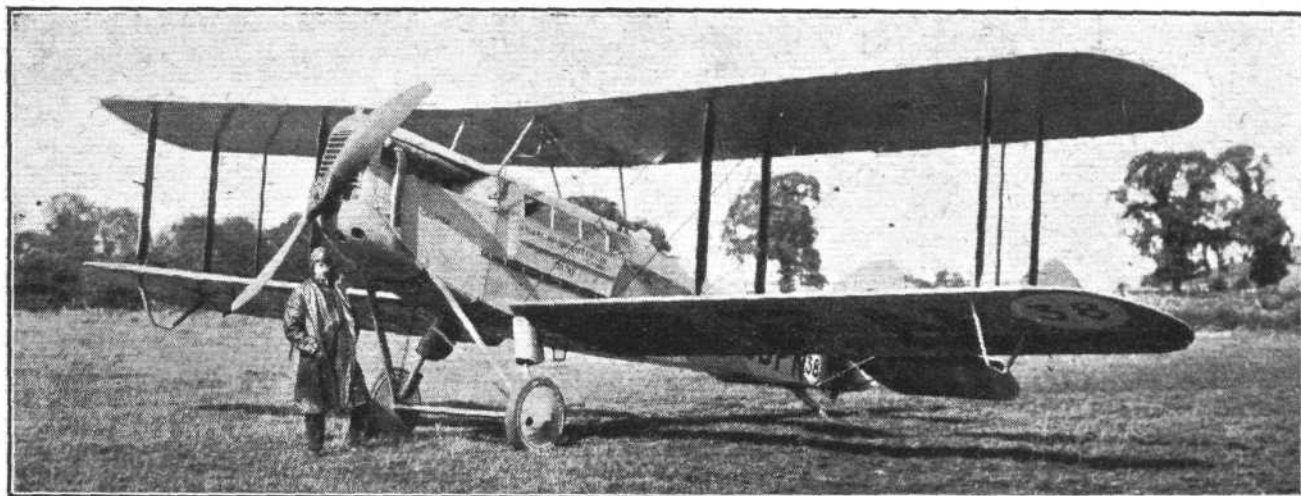


# A NEW DE HAVILLAND COMMERCIAL AEROPLANE

The D.H.50 with 240 H.P. Siddeley "Puma" Engine

"THIS is not a good machine." Thus commenced the report of one of the de Havilland test pilots after a trial flight on the first of the new D.H.50's just completed at the Stag Lane works of the de Havilland Aircraft Company. It should be pointed out, however, that the continuation of the pilot's report made it clear that the machine, in his opinion, was not

skid, gravity petrol feed, etc., carries four passengers and yet weighs something like 100 lbs. less than the D.H.9 from which it has descended, one begins to get an idea of the progress that has been made. And even so, it seems quite possible that it will not be the economy, the performance, nor the general excellence of the design that will make the type most popular



THE D.H.50 : Three-quarter front view.

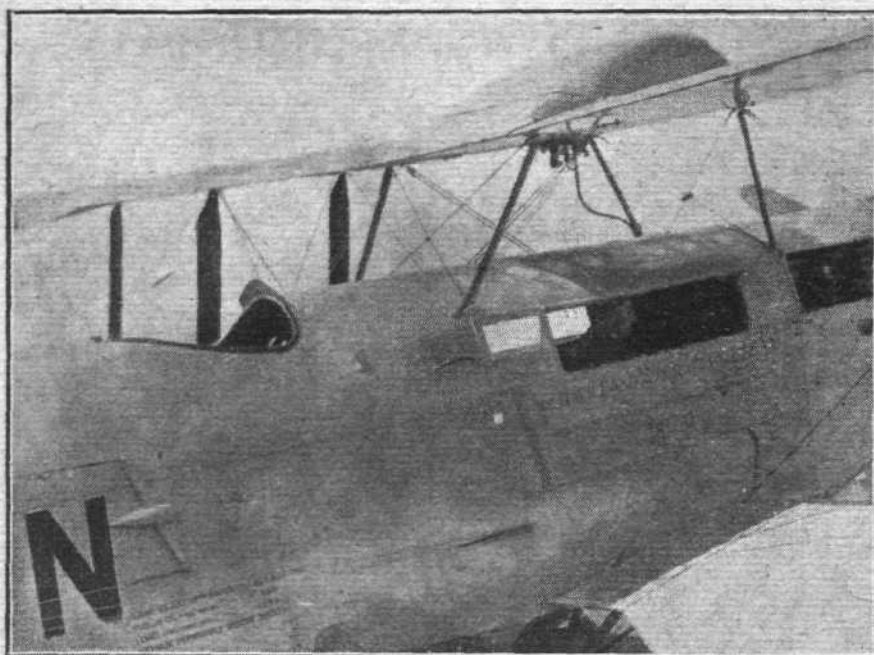
merely a good machine, but that from the pilot's point of view it was something quite out of the ordinary, quite extraordinarily good. As the pilot is a man who has done many thousands of hours in the air on a number of different types, he may be assumed to have become somewhat blasé, and to be with difficulty moved to enthusiasm. When, therefore, he expressed himself, in no uncertain terms, delighted with the D.H.50 it may be accepted that the machine really does possess features which mark a definite improvement upon previous types.

Yet on looking at the new D.H.50 in a casual way, one might be forgiven for failing to detect anything very remarkable in its design. Resembling in general appearance other de Havilland machines that have become famous, the D.H.50 looks, and is, a clean, straightforward piece of work, but certainly not remarkable for originality. It is not until one begins to go into detail, and looks into the figures of weight, useful load, etc., that the real merits of the type become apparent. When it is stated that the D.H.50, although possessing all modern features such as oleo undercarriage, damped tail

during the years to come. That popularity will most likely be based upon the delightful manner in which the D.H.50 responds to her controls. This applies not only at full speed and cruising speed, but also, and what is, perhaps, even more important, at or near the stalling speed. Although complete tests have not yet been carried out, especially on performance, etc., sufficient has been found out to be able to state that the D.H.50 is very definitely faster than the D.H.9—how much faster cannot as yet be stated with certainty—and also has a greater speed range. From the preliminary tests it appears that the L/D of the machine is very good indeed, especially is this noticeable at large angles, i.e., at low speeds. In gliding in to land, the machine "floats" along, and even at about 50 m.p.h. banked "S" turns can be carried out with the greatest ease, the controllability being, apparently, just as good as at higher speeds. Thus, even if it is granted, in the absence of complete data, that on a basis of wing loading the D.H.50 should land as fast as the D.H.9, the practical landing speed at which it can be put down will be considerably lower, owing to the excellent controllability at large angles. Now, it



THE D.H.50 : Side view.



**THE D.H.50 : View of the cabin. Note the absence of wire bracing on the starboard side.**

is a well-known fact that it is not possible to land the majority of machines at their absolute minimum speed, owing to the controls becoming "sloppy" at low speeds. In other words, lack of controllability prevents full use being made of the speed range of which the machine is capable. In the D.H.50 it appears that a very marked improvement in this respect has been effected, and that this type will come much nearer to the ideal than even its designers had expected.

The natural question that will be asked, as the general appearance of the machine does not at once indicate the reasons for this all-round improvement, is: Which are the causes that have contributed towards making the D.H.50 not merely a good machine, but something considerably more than that? The answer must be that no one feature of the design is responsible, but that the improvement is due to the cumulative effect of a number of things. For instance, as regards the reduction of 100 lbs. in weight which has been effected, this is the result of the most painstaking care in detail structural design. Thus, by way of an example, it may be mentioned that the fuselage has "bulges" on the sides to give "elbow room." By making the fuselage itself narrower by the extent of the "bulges" something like 4 ins. in the width has been saved, with consequent reduction in fuselage weight. This is only one item; a number of others could be mentioned but this will serve as an example of the attention which has been given to detail, and which has resulted in such a considerable saving in structure weight.

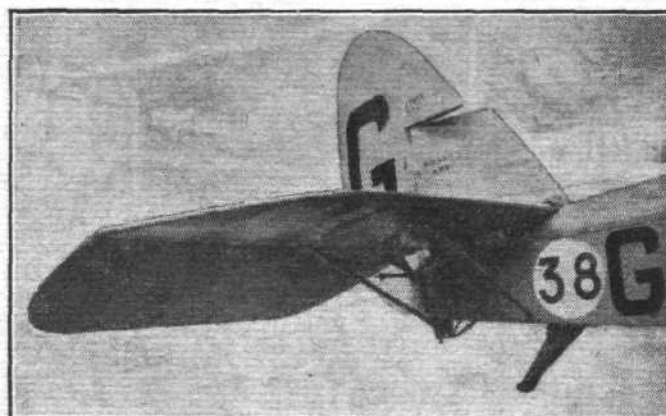
As regards the aerodynamic reasons for the improved performance, and the vastly improved controllability, it is

more difficult to get at the facts. To begin with, the fuselage, with its small nose radiator and enclosed cabin top, is much "cleaner" than that of the D.H.9, giving the air, one may assume, a more undisturbed flow. Then there is no cut-out in the trailing edge of the top plane, nor any cables running along the leading edge, nor any wing flap cranks projecting upwards on the upper surface, so that here again the air flow is probably greatly improved, with resultant improvement in the aerodynamic efficiency of the machine.

The improvement in controllability is due, in the first place, to the de Havilland patented type of differential ailerons, in which system the upward-moving flap travels through a greater angle than that moved through by the corresponding downward-moving flap on the opposite side. This system of aileron control is not, however, in itself sufficient to account entirely for the better controllability, which must be partly due to other causes, connected, probably, with the generally cleaner air flow over the wings. The degree of differential movement, and the area and shape of the ailerons, play an important part, and perhaps the best one can do is to say that here is one of those cases where a machine has come out "right" from the first. Any designer knows that this occasionally happens, and that one

can never be quite certain beforehand whether it will or will not happen. In this case there is not the slightest doubt that the machine is exactly "right," and one can but congratulate the designers on their achievement.

Considered as a commercial machine, the D.H.50 is intended for use on "feeder" lines, where the employment of a larger machine is not justified by the volume of traffic, or as a "taxi-plane" in place of the D.H.9's, which have hitherto been employed for this purpose with such remarkable success.

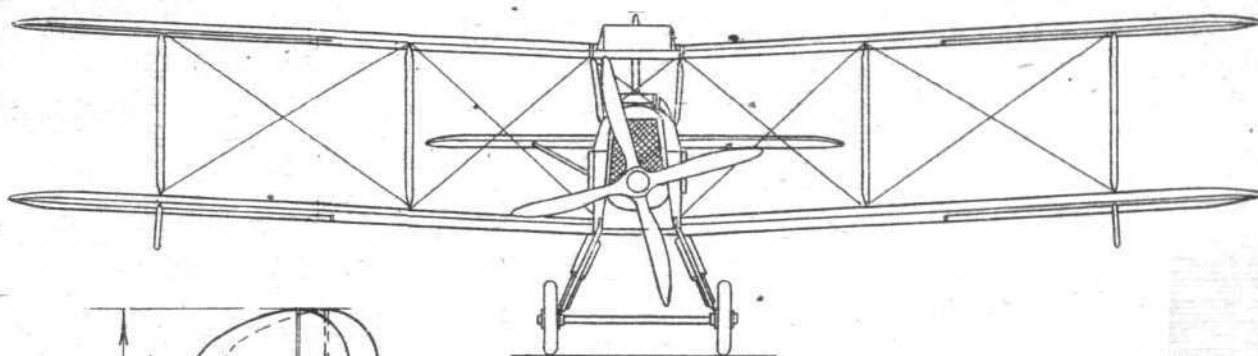
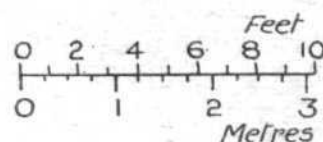
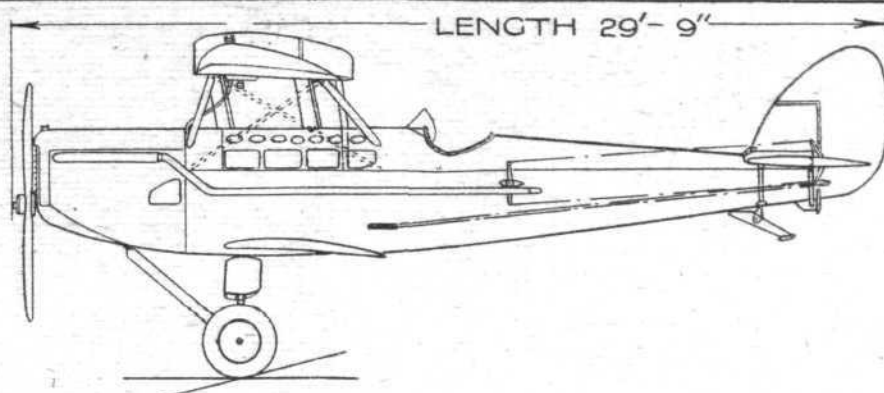


**THE D.H.50 : Tail and tail skid.**

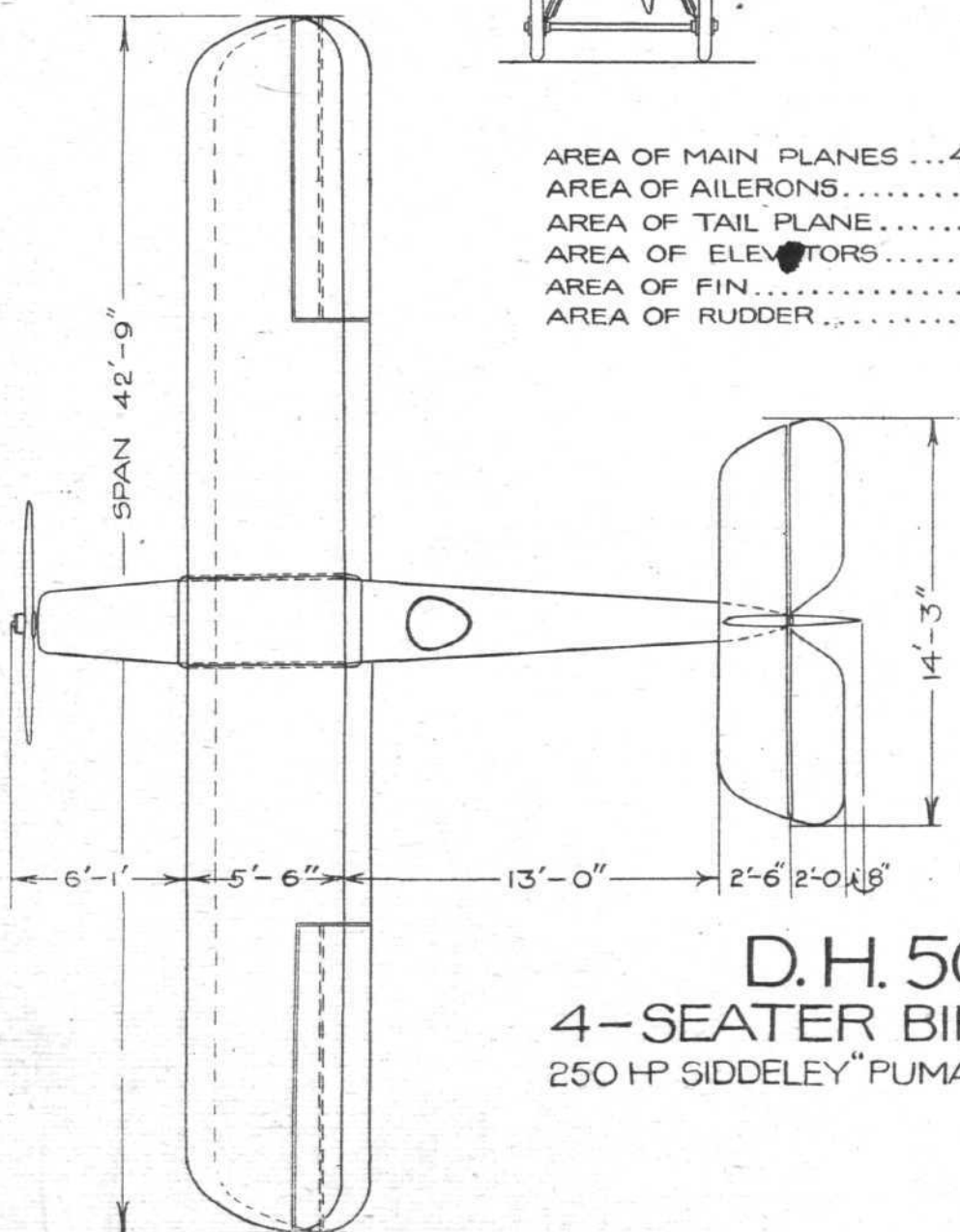


**THE D.H.50 : Three-quarter rear view.**



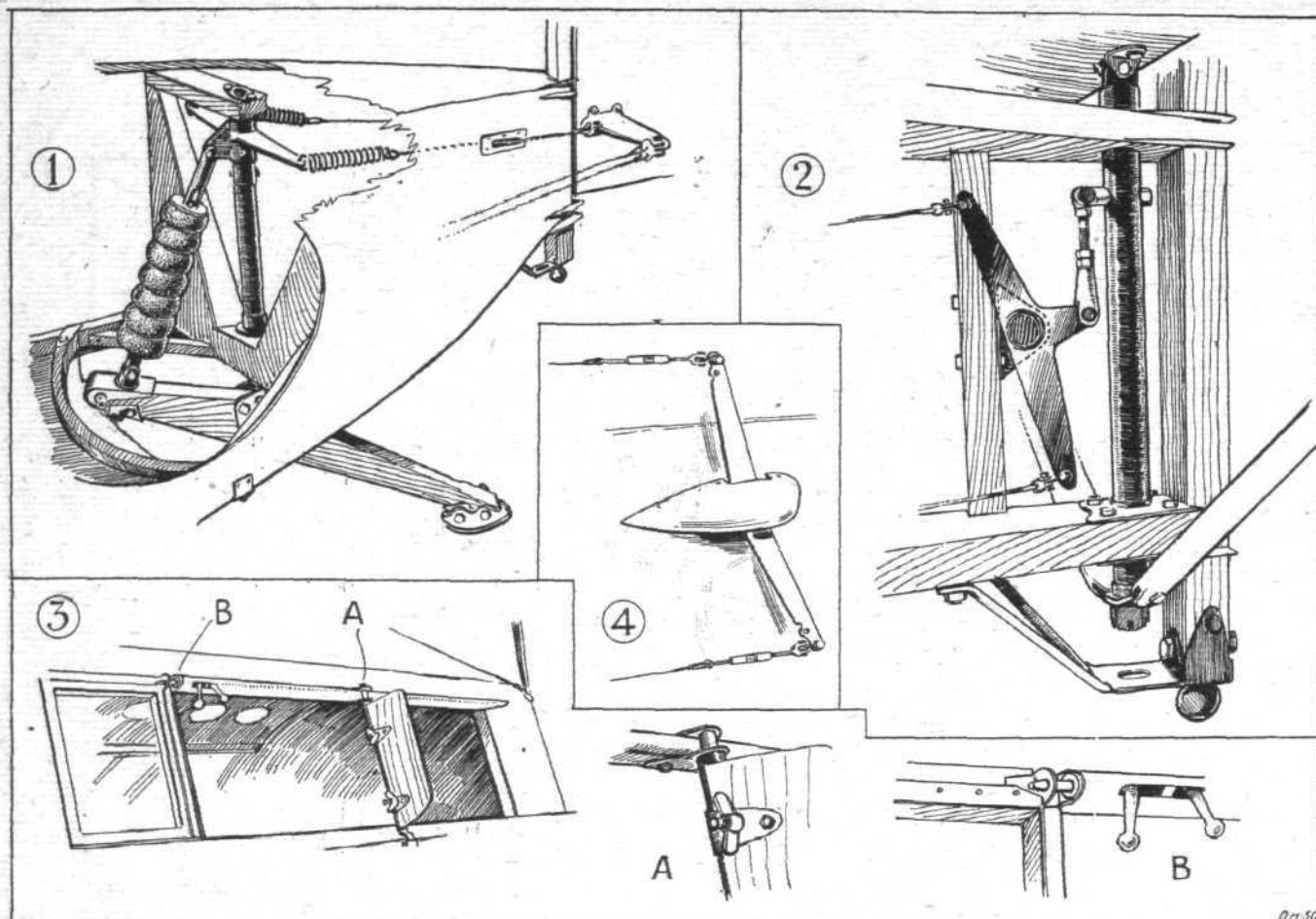


AREA OF MAIN PLANES ... 437 Sq.Ft.  
 AREA OF AILERONS ..... 65 Sq.Ft.  
 AREA OF TAIL PLANE ..... 30 Sq.Ft.  
 AREA OF ELEVATORS ..... 21 Sq.Ft.  
 AREA OF FIN ..... 3.5 Sq.Ft.  
 AREA OF RUDDER ..... 11.75 Sq.Ft.



**D.H. 50**  
**4-SEATER BIPLANE**  
 250 HP SIDDELEY "PUMA" ENGINE

THE D.H.50 : General arrangement drawings, to scale,



**THE D.H.50—SOME CONSTRUCTIONAL DETAILS:** 1 shows the steerable tail skid, with its rubber compression block springing. In 2 are shown the details of the tail trimming gear. 3 shows the deflector mounted outside the open starboard window. 4 streamline fairing over end of elevator layshaft.

One can also envisage its usefulness in opening out new air routes where, at first, the number of passengers, or the amount of goods, cannot be expected to be sufficient to fill machines with larger capacity. For all such work the D.H.50 should be particularly suitable, not only on account of its economy, but also because of its good performance. As already mentioned, the makers have not yet completed their tests, and do not, therefore, wish performance figures to be quoted, but that both the maximum speed and the speed range are greater than those of the D.H.9 has already been definitely established. It seems safe to state that the cruising speed of the machine will be somewhere very close to the 100 m.p.h. figure. The fuel economy at this speed, owing to the high value of the L/D of the whole machine, should be very good indeed, and the criticism that the machine is using, on a basis of full power, close upon 60 h.p. per paying passenger, is met by calling attention to the fact that the "power-required" curve is very far below the "power-available" curve at cruising speed, and that consequently there is a large excess of power, which means that the machine has an ample reserve of power for emergencies, while at the same time the engine can be run normally at only 60 per cent. or so of its maximum, thus ensuring not only a long life but also good reliability.

The general lines of the D.H.50 are well shown in the accompanying general arrangement drawings and photographs. The "clean" lines and absence of projections should be noted. The fuselage is of usual de Havilland construction, i.e., it is a ply-wood covered structure without wire bracing. The sides and bottom are flat, for ease and cheapness of construction, while the cabin top, roof of engine housing, and deck fairing aft of the cabin are cambered.

The 240 h.p. Siddeley "Puma" engine is very accessibly mounted, but there is no separate engine mounting unit such as that fitted in some of the larger machines. Nor is this probably necessary in this case. There is ample space left around the engine, and all parts and accessories likely to need attention are easily accessible, either through inspection doors or through the large openings left on each side of the upper part of the engine. Although the top of the engine housing is covered by a cambered roof, and the fuselage floor under the engine by a sheet beaten up to form a rounded belly, the space

from the top longerons to the "eaves" of the roof is left entirely open, with the exception of curved deflectors near the back, serving to send the air which has passed through the radiator and into the engine house clear of the cabin sides. A special arrangement has been adopted for dealing with oil leak problems, with the consequence that the D.H.50 should be exceptionally clean and free from oil thrown back over the walls of the cabin. This feature is of importance not only because of the general cleanliness of the machine, but also, and even more so, on account of the smaller amount of work required to keep the machine spick and span. By leaving the sides of the engine-house open a considerable amount of heat is carried off by the air direct from the water jacket walls, and a smaller nose radiator can be employed, with consequent gain to the appearance of the machine. At the same time the upper portions of the cylinders, with sparking plugs and high tension cables, are immediately accessible, without inspection doors to undo. Needless to say, a fireproof bulkhead separates the engine from the cabin space, which follows immediately aft of the engine.

The cabin, although its size has been kept down to a minimum, is not at all cramped. In fact, on sitting down inside one is surprised at the amount of leg-room and the general airy impression which the cabin gives. Seating accommodation is provided for four passengers, all facing forward. The front seat is of the hammock type, the two cross bars for which rest in trunnions on the sides of the cabin. The after seat is fixed, and is of three-ply construction, but provided with a comfortable back-rest and air cushions. An air-speed indicator and an altimeter are mounted on the front wall of the cabin, and a map of England, Northern France, north-western portion of Germany, and the Scandinavian countries was provided on the machine which we had an opportunity of inspecting at Stag Lane the other day. This was because the machine was that evening flying to Rotterdam in connection with the Rotterdam-Copenhagen-Gothenburg "Arrival Competition." The machine was piloted by Mr. Alan Cobham, who carried as passengers Mrs. Cobham, Admiral Mark Kerr, and Mr. C. C. Walker, chief engineer and a director of the de Havilland Aircraft Company.

By so arranging the seats that they can be easily unshipped



the D.H.50 can very rapidly be converted into a goods carrier, in which rôle its carrying capacity is extraordinarily good—approximately 1,100 lbs. of paying load being possible without exceeding the total loaded weight for which the machine's air-worthiness certificate is issued. This amount of paying load is additional to the weight of fuel carried, which is in the neighbourhood of 400 lbs. weight, or sufficient for more than 3½ hours' flying. Assuming a range of about 400 miles, the paying load of the D.H.50 is therefore approximately 4.6 lbs. per horse-power, and that at a cruising speed of 100 m.p.h. As a passenger-carrier we believe it is intended to hire out the D.H.50 at the usual fee charged for the D.H.9's, *i.e.*, 2s. per mile, so that the cost per passenger works out at 6d. per mile, which is certainly very reasonable indeed. What it amounts to is this: Assuming that four people wish to travel from London to Paris in a private aeroplane. The distance is approximately 240 miles, which, at 2s. per mile, works out at £24, or £6 per passenger, or about the same fare as that charged on the regular air lines. If goods be carried, and the full load of 1,100 lbs. assumed, the cost from London to Paris works out at 5½d. per lb. These figures are, of course, based upon the charges made when the machine is hired out by the de Havilland Hire Service, and may therefore be assumed to show a profit on the actual cost, which profit would be gained by any firm operating the machines on their own lines.

Mention has already been made of the seating accommodation in the cabin. Access is gained from the starboard side, the roof of the cabin being hinged along the port side. The passengers step up on the trailing edge of the lower right-hand plane, which is reinforced with three-ply for the purpose, and from there to a small step permanently mounted on the side of the fuselage. When the passengers have embarked the roof is closed down, the fastenings being within easy reach from inside as well, although a notice warns the occupants not to open the cabin while the machine is in flight. Ventilation is ensured in the simplest way possible, *i.e.*, by leaving the window on the starboard side without glass panes. Owing to the direction of the slip stream from the propeller this has been found quite feasible, and, in order to get rid of the very small amount of draught noticeable in the back seat, a small deflector is mounted outside the starboard window, adjustable by the passengers. From the cabin it is quite easy to converse with the pilot, whose cockpit is placed aft of the cabin, through a large-diameter tube of three-ply running aft from the cabin. The long exhaust pipe on the port side effectively silences the engine, and conversation in the cabin is easily possible during flight.

From the pilot's cockpit an exceptionally good view is obtained, and the coaming has been so shaped as to restrict his view as little as possible, while at the same time "streamlining" his head. The controls are of usual type, but fitted with ball bearings everywhere, as in all recent de Havilland machines, and the cables are in all instances arranged "straight through" so as to avoid taking them over pulleys. The consequence is that all control surfaces work remarkably

easy, and even during flight the pilot can operate the joy-stick with his little finger.

The petrol tank is mounted above the top centre-section, and is given the shape of a thick, high-lift wing section. From it the fuel flows by gravity to the carburettors, through "Petroflex" tubing, and the tank is divided by a partition, two petrol cocks being, of course, provided, so that, although a petrol gauge is fitted the pilot need not worry much about its extreme accuracy, as he knows that when the main supply runs out he has, by turning on the supply in the smaller tank, sufficient petrol for one half-hour's flying. The two cocks are operated by cables from the port side of the cockpit.

A certain amount of unorthodoxy is found in the wing bracing, which at first sight looks rather incomplete. To begin with, there are no anti-lift wires in the inner bays. At first this looks alarming, but the reason for the omission at once becomes evident: by leaving out this wire access to the cabin is greatly facilitated, and as these particular wires are only loaded to any great extent on landing the incidence wires between the first pair of struts are probably well capable of transmitting the loads. Again, in the bracing of the centre section struts the right-hand set of wires has been omitted, the left-hand set being duplicated. As in the case of the anti-lift wires the reason is found in the problem of access to the cabin. The top centre-section has been covered with thick three-ply so as to transmit the stresses, and the upper ends of the centre-section rear struts are attached behind the rear spar, to specially strong beams used to reinforce the structure. Thus the omission of certain wires need cause no misgivings, although looking at first somewhat alarming.

The undercarriage is of the usual V-type, but with oleo gear. The first 6 ins. or so of the travel is taken by the oil, and is then assisted by rubber shock absorbers for the rest of the stroke. The tail skid is sprung and damped, as shown in the sketch, by rubber compression blocks. It is steerable and works in conjunction with the rudder, although springs are incorporated so that, should the skid jam, the rudder can still be operated.

The tail is of usual de Havilland form, and the tail plane is of the trimming type. It is operated by a horizontal T, as shown in a sketch, by cables and a lever in the cockpit. The action is, of course, much quicker than in the case of a worm type of trimming gear, and it has actually been found possible to control the machine on the trimming gear instead of on the elevator, although the latter is, of course, more effective. Thus it will be seen that the machine can be very quickly trimmed to meet any emergencies.

The main dimensions of the D.H.50 are shown on the accompanying scale drawings. The empty weight of the machine is 2,253 lbs. and the weight of fuel 394 lbs. The useful load, including pilot, is 1,253 lbs., giving a maximum permissible total loaded weight of 3,900 lbs., which is the weight covered by the machine's air-worthiness certificate. The wing loading is approximately the same as that of the D.H.9, and the power loading is 16.3 lbs. per h.p.

## THE RELATIONS OF THE NAVY AND THE AIR FORCE

### Recommendations of the National and Imperial Defence Committee

THE official report on the enquiry into the relations of the Navy and the Air Force by a special sub-committee of the National and Imperial Defence Committee has now been published (Cmd. 1938), and as the subject is one of very considerable importance we would recommend all interested to obtain from H.M. Stationery Office, Imperial House, Kingsway, W.C. 2, a copy of the report, the price of which is 6d. net. Considerations of space do not allow of publishing the entire report in FLIGHT, but below will be found a summary of the report, while Part III, which gives the recommendations of the Committee, is published in full.

A section of the Report contains some observations by the Main Committee on the term to be used in describing the status of naval officers serving in the Fleet Air Arm. The term "seconded" is not considered satisfactory, as the actual position of a naval officer seconded to the Air Service afloat differs from a seconded officer as the term has hitherto been understood. The Main Committee therefore would prefer the more general term "attached," and the first section of the Report defines the conditions of attachment, even to such detail as the uniform to be worn.

Part I of the Report of the Special Sub-Committee, which was composed of Lord Balfour, Lord Peel and Lord Weir and was instructed to "enquire into the relations of the Navy

and the Air Force, as regards the control of Fleet air work," is devoted to a statement of the general problem. It is pointed out that the Sub-Committee have taken a great deal of evidence from witnesses representing both departments, and that, in addition, Lord Peel and Lord Weir, accompanied by Sir Maurice Hankey, Secretary of the Sub-Committee, paid a visit to the aerodromes in the neighbourhood of Portsmouth, and to the aircraft carriers "Argus" and "Eagle."

The Air Ministry view is briefly stated, as is also that of the Admiralty, and the Sub-Committee express the greatest sympathy with both points of view. They do not think that the present system can remain altogether unchanged; neither do they think it possible to sever completely from the air organisation responsible for home defence against air attack the air organisation which does work for the Fleet, and suggest that a course "somewhere between these two extremes" should be followed. Before describing their suggestions in detail the Sub-Committee give a brief sketch of the system now in course of development. The sketch forms Part II of the Report, and for fuller details than we are able to give, the official Report should be consulted. Following is a rough outline:—

Briefly the general system in force at present is as follows:



The Air Ministry raises, trains and maintains the Fleet Air Arm, which at sea comes under the operational and disciplinary control of the Admiralty, which designs, builds and maintains the aircraft carriers. The functions of the Fleet Air Arm comprise aerial reconnaissance, naval gunnery spotting, bombing and fighting. Air Force squadrons also operate over sea from shore bases in co-operation with the Navy, but these are not at present in question. Naval Air policy is concerted by the Air Staff and Admiralty War Staff, but it is pointed out that naval officers of high rank do not have many opportunities of obtaining experience or training in air matters.

Apart from matters of policy, *liaison* is secured between the Navy and the Air Force by a special machinery termed the "Coastal Area," provided by and subject to the general control of the Air Ministry. The Coastal Area is commanded by a senior Air Force officer, who is adviser to the Admiralty on Air matters other than policy, and communicates directly with the Commander-in-Chief, Atlantic Fleet. Under the Air Officer Commanding the Coastal Area are two group captains, with headquarters at Leuchars and Lee-on-Solent respectively. In the case of larger operations the Naval Commander-in-Chief notifies his requirements to the Air Officer Commanding Coastal Area, but for minor operations he deals directly with one or other of the group captains.

On board the aircraft carriers the position is this, that the Air units come under the orders of the naval Commander-in-Chief, who has an Air Force officer on his staff, and who gives his orders for flying to the captain of the aircraft carrier (who is, of course, a naval officer), and he in turn gives his orders to the senior Air Force officer on board.

With regard to the question of supply of personnel, the Air Ministry are responsible for the supply of officers and other ranks for duty with the Fleet Air Arm, with the exception of certain naval officers who, after training in Air Force establishments, are employed as observers in fleet spotters. The report calls attention to the importance of noting that the R.A.F. possesses a number of officers who were formerly in the R.N.A.S., many of whom were trained as naval officers, and states that the senior positions in the Air Fleet Arm are at present largely filled by these officers. The original intention of the Air Ministry was that, in order to replace these, some 30 per cent. of the officers of the Fleet Air Arm should consist of naval officers seconded for a term of years. Unfortunately, however, the Report adds, only a very few naval officers responded to the invitation to volunteer for this service.

On the subject of training the Report states that the whole of the primary training of flying personnel is carried out by the Air Ministry, and that the later and more specialised training of the Fleet Air Arm is partly conducted in the aircraft carriers and partly on land at technical schools maintained by the Air Ministry at certain naval ports. The Air Force training schools in the Portsmouth area work in close touch with the naval gunnery and torpedo schools.

With reference to design and research work, it is stated that new design, experimental and research work to meet naval requirements are carried out by the Air Ministry after consultation with the Admiralty. The Admiralty put forward their suggestions, and the Air Ministry then endeavour to supply types capable of doing the work required, by drawing up specifications and calling for designs from the trade. There is also in existence an inter-departmental committee, called "The Joint Technical Committee on Aviation Arrangements in His Majesty's Ships," which consists of representatives of the Admiralty and the Air Ministry, and whose functions are to examine the technical problems which may arise with regard to the suitability of the types of aircraft intended for use on carriers. "It is clear," the Report states, "that new uses of aircraft, involving possibly new types, can be proposed either by the Admiralty or the Air Ministry."

In concluding this section of the Report, it is mentioned that at present the Air Ministry are solely responsible for the supply of all material, and that an establishment of the machines required for the Fleet Air Arm has been agreed upon. This establishment is at present limited by the number of aircraft carriers in commission, but the Air Ministry have made arrangements for the number of machines to be increased as required when the two new carriers are completed in 1923-24.

### Recommendations

The Special Sub-Committee then proceeds to make, in Part III of the Report, a series of recommendations which, as they have now been accepted by the Government, we publish in full below:—

We have endeavoured to explain, in the first place, the general nature of the objection felt by the Air Department to

any important change in the existing system and by the Admiralty to its maintenance. We have also given a full account of the system as it has been developed up to the present moment. We now propose to turn to the future and make certain suggestions which, as we hope, may go far to reconcile the contending parties and to make material improvements in the existing system.

Our task is materially lightened by the fact that, in the course of discussions before your Sub-Committee, a larger measure of agreement was found possible on certain aspects of the problem than had at one time seemed likely.

In the first place, it appeared that on some important points the practice, though not the written law, of the Air Department was already in conformity with the wishes of the Admiralty. For example, the Admiralty are very desirous that the group captains in contact with the Navy should be officers with experience of the Fleet Air Arm.

Broadly speaking, the Air Ministry take the same view, and we recommend that it be made part of the settled practice of the Air Ministry to consult with the Admiralty before such appointments are made. We think the same principle should be extended to the Air Officer Commanding the Coast Defence Area and the Senior Air Officer on board a carrier.

The Admiralty desire that the Air Ministry shall provide all the matériel which they demand. This, we believe, has always been the intention of the Air Ministry.

We think it should be formally laid down, and that, in the event of the Air Ministry for one reason or another not carrying into effect the wishes of the Admiralty, there shall be an appeal by either party to the Committee of Imperial Defence.

We have no reason to believe that there is any fundamental difference of opinion between the two Services with regard to certain questions of discipline, such, for example, as those which might arise when a member of the Air Force leaves the ship, where he is under the command, for every purpose, of the captain, and goes for training to the aerodrome, which is under the control of an officer of the Air Force.

But though there are no differences of principle, there are certain obscurities which it would be desirable to clear up, and we therefore recommend that the two Departments should, in collaboration, draw up a code of regulations, which would make clear the relations between them at all points where they come in contact.

In all the cases that we have so far enumerated there may have been misunderstanding, but there has not been at any time, so far as we are aware, any difference of principle.

We now turn to a class of cases where, as a result of discussion before your Sub-Committee, the Air Department have shown a disposition to meet Admiralty views. The first of these relates to the framing of the Naval Estimates. The Admiralty desire that in these Estimates should be included the cost of the Fleet Air Arm.

The Air Department are of opinion that technically this course would be inconvenient, but have no objection to it in principle. Your Sub-Committee are of opinion that this question should be settled by the Treasury in consultation with the two Fighting Services.

The Admiralty require that the Air Force on board ship should be completely under the orders of its captain. Your Sub-Committee are of opinion that, inasmuch as all the airmen on board ship are under the Naval Discipline Act, this, in theory, is already provided for, but undoubtedly in the minds of those chiefly concerned some obscurity hangs over the subject. This, we think, should be explicitly cleared up.

The position of a member of the Air Force when on board ship does not differ in law, and should not differ in practice, from the position of, say, a Marine.

In order fully to carry out the policy laid down in the preceding paragraph, we recommend, and have reason to believe that the Air Ministry will accept the principle, that all reports on officers of the Fleet Air Arm, whether confidential or otherwise, should be signed by the captain of the ship and passed through the Naval Commander-in-Chief to the Air Officer Commanding the Coastal Area.

A further point which should be dealt with under this heading is one on which the Admiralty have expressed considerable anxiety, and on which we have reason to believe that the Air Force are prepared to meet their wishes. The Admiralty are apprehensive lest, in time of war or other emergency, the Air Ministry might withdraw from the Navy units of the Fleet Air Arm, and use them for other purposes. In respect of this we recommend that it should be definitely laid down that the personnel, *matériel* and reserves of the Fleet Air Arm should not be withdrawn by the Air Ministry without either the consent of the Admiralty or a decision of the Cabinet.

Before concluding this class of questions we must take note





of a complaint made by the Admiralty that on board the carrier there is a good deal of duplication of effort between the purely Naval Service and the Air Force.

We think this subject should be looked into by the two Departments concerned, and we do not doubt that arrangements can be made by which all overlapping can be effectively avoided.

We now come to the last class of questions with which we have to deal, which are at once the most difficult and the most important. We are strongly of opinion, and we have every hope that the two Services share our view, that, since in war the Services may have to co-operate, it is vital that in time of peace they should form an accurate estimate of each other's needs and capacities.

We therefore recommend:—

(i) That Naval officers should be appointed to the Air Staff.  
(ii) That Air Force officers should be appointed to the Naval War Staff.

(iii) That some means should be devised by which the wealth of technical knowledge at the disposal of the Admiralty should be utilised in the technical departments of the Air Ministry, preferably by reinforcement of the staff of these departments by naval technicians.

These recommendations refer exclusively to the headquarters of the two Services; but it is perhaps even more important that the junior ranks of the two Services, who will in time occupy responsible positions, should have a considerable sprinkling of persons familiar with the needs and capacities of the other Service.

The Air Force look to a system of naval seconding for carrying out half this policy, and we cannot believe that the Admiralty would be averse to having members of the Air Force on board the carriers. Unfortunately, seconding from the Navy to the Air Force, as at present understood, must be deemed to have been hitherto a failure, and we find it difficult to believe that, if the present system remains unchanged and unexplained, any great improvement is likely to occur. We cannot be surprised that a young officer who has just joined the Navy is reluctant to abandon, even temporarily, the department under which he expected to serve and to exchange it for one which is essentially different. The feeling is natural, and cannot be ignored.

It must, however, be pointed out that if the word "seconding" is thus used this is not what any naval officer under the present scheme is expected to do. In ordinary practice, when we say that an officer is "seconded" to another Service we no doubt intend to express the idea that for the duties which he had to perform and for the authorities he had to obey in the Service which he has temporarily left, will be substituted new duties and new authorities. But this does not really represent the facts in the case of so-called "seconding" from the Navy into the Air Force. The duties of the seconded officer, though carried out in the air, remain, nevertheless, Naval duties, and the captain whom he has to obey continues to be a naval captain.

In order to make this situation perfectly clear, we recommend that no seconded naval officer shall be asked to perform non-naval air duties, except with the consent of the Admiralty. We believe the Air Force are prepared to accept this principle.

If this recommendation be carried into effect, the most important change involved in the operation of what is (somewhat inaccurately) called "seconding" is the change from the naval to a flying uniform—a change which can hardly be said to touch the essence of the situation.

We suggest, however, in order to meet the sentimental, though not on that account unimportant, objection, that the uniform of a Naval flying man who, except for his period of training, is to all intents and purposes still under the Admiralty, should be distinguished from the flying men under the Air Force by some differentiating badge or mark. This would be the outward and visible sign that he still remains a member of the Service which he originally joined. It would be a clear indication that what he proposes to do is to add accomplishments in Naval flying to the other accomplishments which his brother officers are cultivating. If such a plan were found practicable, the objection felt by the Admiralty to the introduction of what they deem an alien element into the domestic life of the ship should be largely mitigated.

It might well be that, if this scheme succeeded, the number of officers seconded from the Navy to the Air Force would exceed the 30 per cent. of the total contemplated by the Air Service.

We see no reason why 30 per cent. should be regarded as the maximum, and we should propose to leave it to the Admiralty to determine what the proportion should be, subject to the proviso that not less than 30 per cent. of Air Force officers,

whether regular or short service, should serve on board the carriers.

There is another point of great practical importance on which something must be said. It is agreed that the work of spotting for naval gunnery is one which should be undertaken in all cases by Naval officers, but such investigations as we have been able to make convince us that naval spotting and fleet reconnaissance cannot be sharply divided, and that the officer entrusted with the one may inevitably find himself called upon to perform the other also. We have been unable to discover any objection to this change, which, on the face of it, seems obviously reasonable.

We therefore recommend that fleet reconnaissance, as well as naval spotting, should be entrusted to naval officers seconded or otherwise.

If anybody will take the trouble to read the evidence given before us they will, we believe, be impressed by the number of problems for which a solution has been found by the two Departments or suggested in this Report. We earnestly trust that no merely technical difficulties will be allowed to stand in the way of a settlement which in the public interest is most urgently required.

(Signed) BALFOUR (*Chairman*).  
PEEL.  
WEIR.

M. P. A. HANKEY (*Secretary*).  
2, Whitehall Gardens.  
July 21, 1923.

The concluding section of the Report is devoted to a statement of the decisions taken by the Government on the recommendations of the National and Imperial Defence Committee. It is stated that it is considered impracticable to supersede the Ministerial heads of the three Fighting Services by making them subordinate to a Minister of Defence, and the alternative plan for amalgamating the three Service Departments is equally impracticable. On the other hand, it is considered that the present system of co-ordination by the Committee of Imperial Defence is insufficient, that Committee being advisory and consultative but not executive, the power of initiative resting with the Government Departments and with the Prime Minister. Continuing, the Report states:—

"This system, though invaluable up to a point, does not make any authority, except the Prime Minister, who can only devote a small part of his time and attention to defence questions, directly responsible for the initiation of a consistent line of policy directing the common action of the three or any two of the three Services, taking account of the reactions of the three Services upon one another.

"While, therefore, the existing system of departmental initiative will continue, the responsibility for the wider initiative referred to above in paragraph (4) will also rest with the Chairman of the Committee of Imperial Defence acting under the general direction of the Committee of Imperial Defence and with the assistance of three Chiefs of Staff.

"In accordance with the terms of the Treasury Minute of May 4, 1904, constituting the Committee of Imperial Defence in its present form, the Committee of Imperial Defence will continue to consist of the Prime Minister, as President, with such other members as, having regard to the nature of the subject to be discussed, he may from time to time summon to assist him. In pursuance of a decision by the Prime Minister, the Committee places on record that the following should be members: The Chairman (Deputy to the Prime Minister), the Secretary of State for War, the Secretary of State for Air, the First Lord of the Admiralty, the Chancellor of the Exchequer, or the Financial Secretary, the Secretary of State for Foreign Affairs, the Secretary of State for the Colonies, the Secretary of State for India, the Chiefs of Staff of the three Fighting Services, the Permanent Secretary of the Treasury as head of the Civil Service. In addition to these, other British or Dominion Ministers of the Crown and other officials, or persons having special qualifications, will be summoned as members by the President according to the nature of the business.

"The functions of the Chairman of the Committee of Imperial Defence will be:—

"(i) To preside over the Committee of Imperial Defence in the absence of the Prime Minister.

"(ii) To report to the Prime Minister (when he himself has not presided) and to the Cabinet the recommendations of the Committee of Imperial Defence.

"(iii) In matters of detail, to interpret the decisions of the Prime Minister and the Cabinet thereupon to the Departments concerned.

"(iv) Assisted by the three Chiefs of Staff, as laid down in



paragraph (5) above, to keep the defence situation as a whole constantly under review so as to ensure that defence preparations and plans and the expenditure thereupon, are co-ordinated and framed to meet policy, that full information as to the changing naval, military and air situation may always be available to the Committee of Imperial Defence, and that resolutions as to the requisite action thereupon may be submitted for its consideration.

"In addition to the functions of the Chiefs of Staff as advisers on questions of sea, land or air policy respectively, to their own Board or Council, each of the three Chiefs of Staff will have an individual and collective responsibility for advising on defence policy as a whole, the three constituting, as it were, a Super-Chief of a War Staff in Commission. In carrying out this function they will meet together for the discussion of questions which affect their joint responsibilities.

"Questions relating to co-ordination of expenditure may be entertained by the Committee of Imperial Defence when

referred to it by the Cabinet. The Committee (subject to any directions by the Cabinet) will consider such questions in the light of the general defence policy of the Government and of the strategical plans drawn up to give effect to that policy in time of war.

"The Secretariat of the Committee of Imperial Defence will continue to act as liaison officers between the Chairman of the Committee and the Service Departments. The staff of the Committee will be strengthened by the addition of an Assistant Secretary to be nominated by the Prime Minister on the recommendation of the Secretary of State for Air, whose status will be identical with that of the three existing Assistant Secretaries nominated by the Prime Minister on the recommendation of the Secretary of State for War, the Secretary of State for India and the First Lord of the Admiralty.

"The Standing Defence Sub-Committee is suppressed, and its past proceedings will be merged into those of the Committee of Imperial Defence."

## AIR ESTIMATES

THE Select Committee appointed to investigate the Estimates in their second Report deal with the pay of officers and men in the R.A.F. when it was considerably increased in 1919, and with the terms under which certain officers are engaged. Sir Walter Nicholson, K.C.B., Secretary, Mr. W. A. Bland, C.B., Departmental Secretary and Accounting Officer, and other representatives of the Air Ministry were examined, as was also Rear-Admiral Fuller, C.B., Third Sea Lord and Controller at the Admiralty. The Report elaborates in detail the variations in the pay in the past and at present, the effect of the cost of living, etc.

Referring to a visit to the School of Technical Training for boys at Halton, the Committee states that the number of boys in training there at the present time is about 1,350, and it is to be increased to 2,000. The Committee are of opinion that the management and training of these boys is conducted in a very efficient manner; they were much struck with the discipline, with the order which was kept, and the arrangement by which they were efficiently taught a trade, which, when they left the Service, would enable them to earn a good living. These boys are taken at the age of 16 and remain till they are 18 or 19, and the trades they are taught are engineering and carpentry. In addition they are lodged, fed, and clothed, and receive a payment of 10s. 6d. a week. This payment seems to the Committee to be unnecessary. These boys are in the position of apprentices, and are not only extremely well lodged, fed, and clothed, but are taught, and very efficiently taught, trades which will be useful to them in after-life. Under these circumstances it would appear that, if any payment is to be made, it should be made by the parents of the boys, and not by the State.

The buildings at Halton would seem to have been erected in an unnecessarily extravagant way. The Committee are of opinion, however, that the taking over of Halton and utilising it as it is utilised at the present time was probably more economical than reinstating it in its former condition and surrendering it to its owners.

It is pointed out that the hospital at Halton is a temporary building, and will require to be made permanent. The Air Ministry propose to erect a permanent building at a cost of £182,000, made up as follows: General hospital, 178 beds, £103,000; families hospital, 20 beds, £26,000; quarters for hospital staff (single), nurses and orderlies, £32,000; married quarters for medical officers, warrant officers and orderlies—seven officers, two warrant officers and 8 other ranks, including external services—£21,000; total £182,000. The present number of men and boys at Halton is about 2,500 with a possible increase to 3,000. The number of beds occupied in

the hospital at one time has been as low as 15, and the Committee were informed that the average number of beds occupied at one time last year at Halton was 101. The present hospital also deals with cases at Uxbridge and Henlow.

It was stated that this was the only Royal Air Force general hospital of any size in England for providing training for hospital duties for medical personnel. This would appear, however, to be no justification for providing beds which are not likely to be filled.

The Committee consider that this scheme should be completely revised.

*Cranwell.*—The total cost of the Cadets at Cranwell cannot be ascertained by studying the Estimates, and it would appear to the Committee that the Estimates should be in such a form that the House can readily ascertain the actual cost.

A paper before the Committee stated the number of cadets at Cranwell was at the moment 85, the cost per head per annum, exclusive of the cost of flying training, being £650. It was further stated that it was intended to work an average of 120 during the current year. On this basis the gross cost would be £480, less £65 per head contributed by parents and guardians. Another paper dealt with the kitchen cost for chefs, cooks, etc. Reporting upon the Cranwell farm of 300 acres, managed by the Air Officer Commanding, the accounts appeared to be incomprehensible, but there was no doubt it had been carried on at a loss. The Committee are of opinion the farm should be let and farming operations closed down.

The grass of the Cranwell aerodrome (2,000 acres of grass, also under the same management) was made into hay. It is recommended the grass should be sold by auction as a growing crop.

Admiral Fuller's evidence suggested economies by combination between the Admiralty and Air Ministry, particularly in regard to aircraft carriers, if the personnel were naval.

The witness was of opinion that if his suggestions were carried out and an extra carrier, sanctioned under the Washington agreement, built there would be an annual saving of about £80,000 a year.

The witness was also of the opinion that there could be a considerable saving in the item appearing in the Estimates as "Ocean Transport of Personnel—£172,000," if that was done by the Navy instead of as now by the Merchant Service.

The Committee are of opinion that while the Flying Branch of the Air Service is well managed, there is a great tendency to extravagance and a lack of proper financial control or efficient organisation in the Ministry itself.

### London to Prague in 8 Hours

THE trial flight made by Capt. Barnard of the Instone Air Line on August 4 from London to Prague was entirely successful. Flying a Vickers "Vulcan," with five passengers on board, Capt. Barnard left London at 9.45 a.m. Stops were made at Brussels, Cologne, and Eger, and the machine reached Prague at 7.45 p.m. Copies of *The Times* thus reached readers in Prague on the day of issue.

### Britain and the Schneider Cup

It is reported that, in addition to the Supermarine machine, two more British machines will represent Great Britain in the race for the Schneider Cup. These are stated to be a Blackburn "Whale," with Napier "Lion," and a Sopwith-Hawker, with Bristol "Jupiter."

### No Paris Show this Year

FROM Paris it is reported that the Chambre Syndicale has decided, after consulting the French aircraft constructors, not to hold an Aero Exhibition this year. The general feeling appears to be that the expense of showing machines every year at the Grand Palais is too great and imposes too severe a tax on the constructors.

### The French Light 'Plane Meeting

FIFTY-SIX machines have been entered for the light 'plane trials now being held at Vauville, near Cherbourg, and of these, 37 are pure gliders, the remaining ones being fitted with low-power engines. There is but one British machine entered, the "Zephyr," designed and built by members of the R.A.F. Aero Club.





# GOTHENBURG

## International AERO EXHIBITION

1923



BY THE TECHNICAL EDITOR

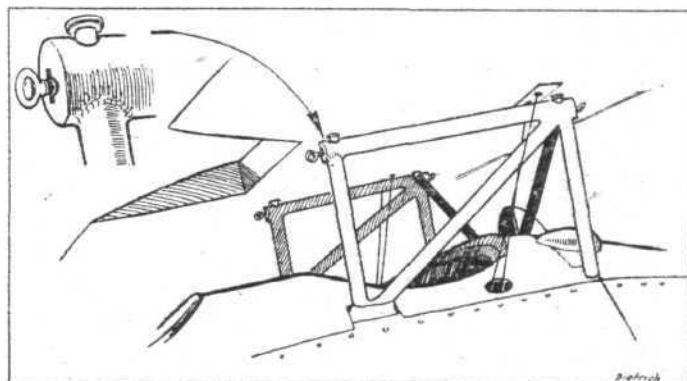
(Continued from p. 453.)

A LATE arrival on the stand of Bäumer Aero G.M.B.H. was a Dietrich-Gobiet two-seater, with rotary monosoupape engine. The machine is, it is stated, intended as a sporting type, and is known as the type D.P.1. Both in the shape of the fuselage, tail, etc., and in the matter of construction, the D.P.1 is very reminiscent of some of the German Fokkers. The fuselage is of welded steel tube construction, and the inter-plane struts, undercarriage struts, etc., are streamline steel tubes. A good deal of attention has been paid to ease of dismantling and erecting, but otherwise the machine is of no particular interest. The general appearance is shown in the accompanying photograph, and the quick-release mounting of the one-piece top plane is illustrated in a sketch.

*Dornier-Metallbauten G.M.B.H., Friedrichshafen a.B.*—As one of the pioneers of German all-metal construction, Herr Dipl. Ing. Claudius Dornier occupies a somewhat unique position in German aeronautics. The Dornier-Metallbauten company is an offshoot of the Zeppelinwerk Lindau, and its origin is traced back to the days before the War, when the late Count Zeppelin founded the Seemoos factory in 1914. This factory was intended to be, and so remained, a huge experimental laboratory for the production of aircraft on novel lines. Even during the War Herr Dornier, who was in charge of the Seemoos factory, was allowed to continue his research work and was in the enviable position of not having to worry over much about commercial problems, the proprietors taking a long view and making up their minds that this particular factory should experiment with the future, rather than with the present, in view. Thus Herr Dornier has been able to develop methods of construction entirely his own, and some time after the War the name of the Zeppelin-Lindau works was changed to the present title of Dornier-Metallbauten G.M.B.H. The

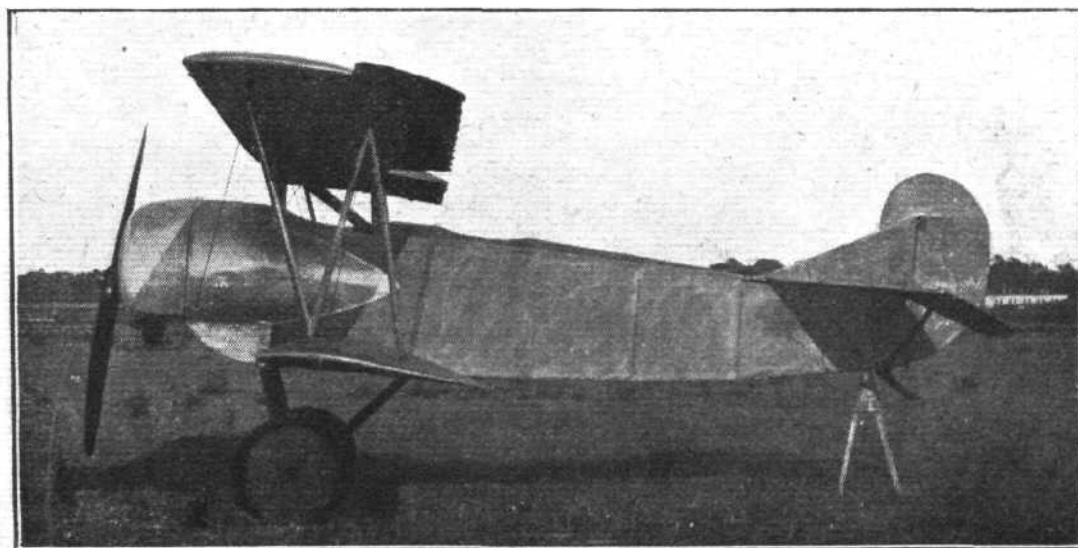
peculiar features of Dornier construction are that high-tensile steels are used for all heavily-stressed parts, while the rest is made of smooth Duralumin sheet. All joints are made either by riveting or by bolts. Welding and soldering is not used at all in any of the Dornier machines.

At the present moment three different types of commercial machines are being produced in quantities at the Seemoos



The top plane of the Dietrich-Gobiet two-seater is attached to the N-struts by quick-release fittings.

factory. These are: the "Komet," a tractor monoplane land machine, which is not unknown to *habitués* at Croydon; the "Delphin," commercial flying boat; and the "Libelle" sporting type of flying boat.



The Dietrich-Gobiet sporting two-seater.

Certain other types evolved by Herr Dornier are of such size and power that they exceed the limitations imposed by the Interallied Commission, and arrangements have therefore been made to build these under licence abroad. Thus the Dornier "Wal" is a twin-engined flying boat with the two engines placed tandem fashion above the monoplane wing. According to whether the machine is fitted with two B.M.W. engines, two Hispano-Suiza, or two Napier "Lions," the useful load is 1,250 kg. (2,750 lbs.), 1,300 kg. (2,850 lbs.) and 1,700 kg. (3,740 lbs.). This type is built in Italy under licence by the Sai. di Costruzioni Meccaniche, Pisa, Marini di Pisa, but was not exhibited at I.L.U.G.

The two machines shown on the Dornier stand were the "Delphin" and the "Libelle," both monoplane flying boats of all-metal construction. Photographs of both these types, as well as of the twin-engined "Wal," were published in our issue of July 26, 1923.

The "Delphin" has already been described in FLIGHT, some two years ago. It is a monoplane with rectangular plan form wing, and with the peculiar "wing roots" growing out of the boat which in all Dornier flying boats form such a feature of the design. These wing roots have been chosen in preference to wing tip floats for the maintenance of lateral stability on the water, and even in the Dornier land machines they are retained and serve there as a support for, and streamline casing around, the wheel axle. The engine fitted as standard to the Dornier "Delphin" is the 185 h.p. B.M.W., and it speaks well for the aerodynamic efficiency of the design that even with this relatively small engine the machine carries pilot and six passengers.

The cabin is provided with large windows of Triplex glass, and as there is no lower plane the view from the cabin is exceptionally good. The Duralumin boat hull is divided into 10 watertight compartments, so that in case of the hull becoming punctured there is small likelihood of it filling. In the original "Delphin" the engine was left entirely uncovered, but in the machine exhibited a certain amount of fairing behind

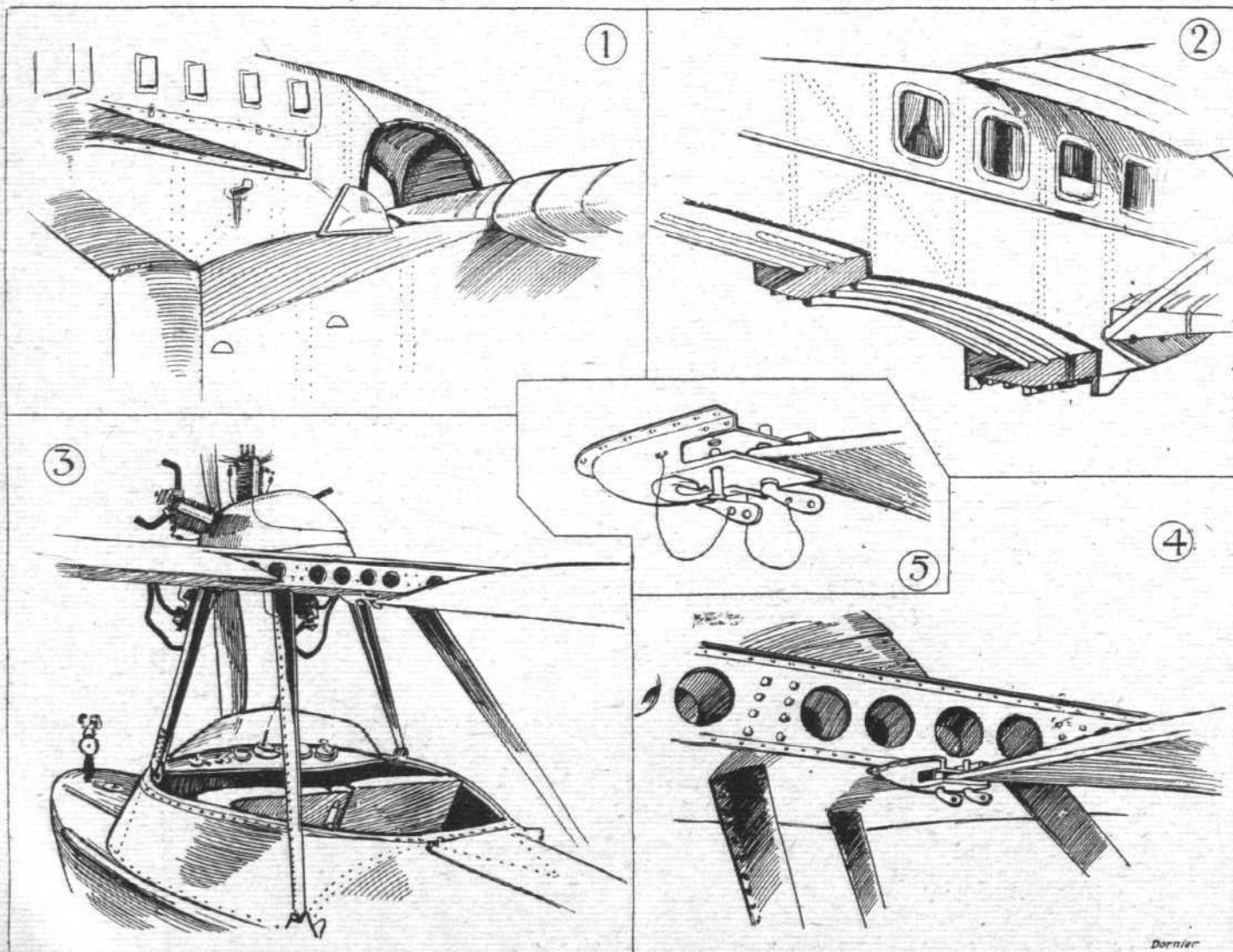
the engine has been adopted, and the pilot looks out through an opening in the cowling, as indicated in one of our sketches.

The boat hull is provided with two steps, as in all British flying boats, and the machine is prevented from "nosing in" by a forward extension of the boat. This projection has been added on more recent models, and was not a feature of the original experimental machine, which looked more like a Dornier land machine having steps in the bottom of its fuselage.

The main characteristics of the Dornier "Delphin" are as follows: Length o.a., 11.5 m. (37 ft. 8 ins.); span, 17.1 m. (56 ft.); weight empty, 1,450 kg. (3,180 lbs.); useful load, 750 kg. (1,620 lbs.); total loaded weight, 2,200 kg. (4,800 lbs.); maximum speed, 150 km. (93 m.p.h.); cruising speed, 120 km. (74 m.p.h.); ceiling, 4,200 m. (13,800 ft.). The range depends, of course, on the proportion of fuel to total useful load. At full throttle the consumption is 41 kg. (90 lbs.) of petrol and oil per hour, and at cruising speed 32 kg. (70 lbs.) per hour.

The Dornier "Libelle" (Dragonfly) is a low-powered flying boat monoplane intended for sport and touring. It is fitted with a Siemens radial engine, which can be either of the five-cylinder 60 h.p. or the seven-cylinder 80 h.p. type. Seating accommodation is provided for three, of whom two sit side by side in front, and a third occupant immediately behind them. Dual control is provided, the two sets being placed side by side, so that the machine lends itself particularly to school work.

In general construction the "Libelle" resembles the "Delphin," i.e., all highly-stressed parts are of steel, and the rest of Duralumin. It should be noted that tubular members are entirely absent in all Dornier machines, with the exception of the wing struts, which are streamline steel tubes. The parts which are not plain sheet metal (such as the boat and wing covering) are rolled or drawn to shape from the flat sheet. The number of rivets used is prolific, and as riveting is one of the most expensive jobs in metal work of this kind it might have been thought that this form of construction



**SOME DORNIER DETAILS :** 1. The "window" in the pilot's cockpit of the "Delphin." 2. View from below of the steps of the "Delphin." 3. The cockpit and centre-section of the "Libelle." 4. When folded, the wings are held in place by quick-release fittings on the trailing edge. 5. Details of 4.



would prove rather expensive. We understand, however, that the "Libelle" takes but a relatively small number of man-hours to build, probably owing to the long experience and good organisation of the Seemoos factory.

In order to facilitate storage, the wings of the "Libelle" are made to fold. For this purpose the trailing edge of the centre-section is removed, and when the bolts in the front spars are removed, and the wing-struts cast off, the wings fold back and are locked in position by the simple fittings illustrated in our sketches. The lower ends of the wing struts are then secured on the rear strut fitting. The whole operation can be carried out in a few minutes.

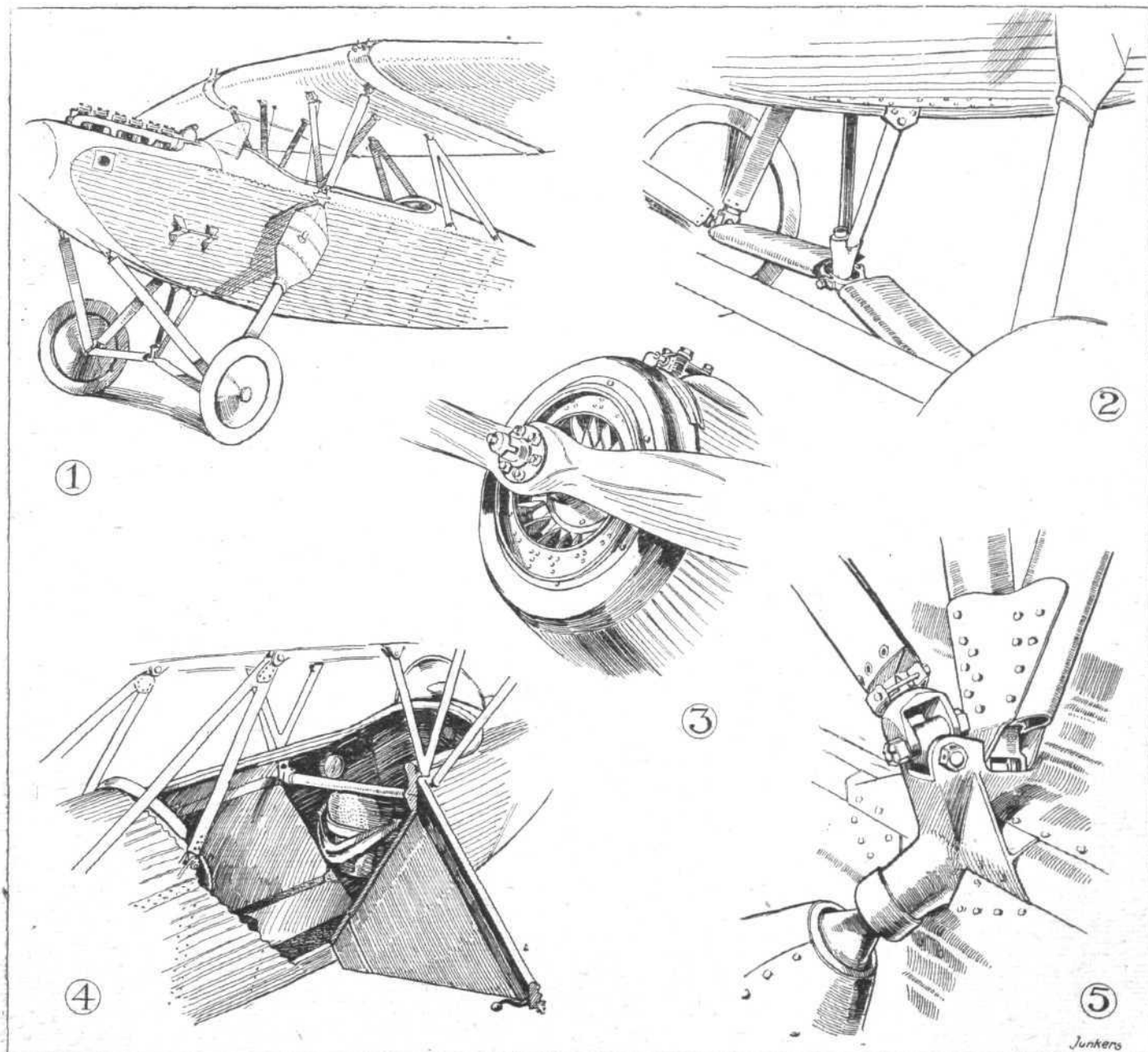
The characteristics of the Dornier "Libelle" are: Length o.a., 7.15 m. (23 ft. 5 ins.); width with wings folded, 3.2 m. (10 ft. 6 ins.); height, 2.4 m. (7 ft. 10 ins.). When fitted with the 60 h.p. engine the weight empty is 390 kg. (850 lbs.) and the useful load 250 kg. (550 lbs.); the maximum speed is then 130 km. (80 m.p.h.) and the cruising speed 100 km. (62 m.p.h.). With the 80 h.p. Siemens engine the weight empty is 450 kg. (1,000 lbs.) and the useful load 300 kg. (660 lbs.). The maximum speed is 155 km. (96 m.p.h.) and the cruising speed 120 km. (74 m.p.h.).

Junkers Flugzeugwerk A. G., Dessau, exhibited three different types, one of which was the "Annelise" or "F" model, which is already well known to readers of FLIGHT, an illustrated description having appeared in FLIGHT of January 18, 1923, when the machine paid a visit to Croydon aerodrome

in connection with Professor Junkers' paper before the Royal Aeronautical Society. The cabin has seating accommodation for four passengers. The type F, like all other Junkers machines, is built entirely of metal, practically all Duralumin. The main characteristics of the machine are as follows: Engine, 185 h.p. B.M.W.; length o.a., 9.6 m. (31 ft. 6 ins.); span, 17.8 m. (58 ft. 5 ins.); height, 3.3 m. (10 ft. 10 ins.); useful load, 650 kg. (1,430 lbs.); speed, 165 km. (102 m.p.h.). The machine can also be supplied as a seaplane, fitted with twin floats, or with skis for use on snow. In that case the overall dimensions are slightly altered, and, in the case of the seaplane, the useful load reduced to 550 kg. (1,210 lbs.).

The Junkers type K is a small three-seater cabin monoplane, and of Duralumin construction, with corrugated Duralumin covering of both wing and fuselage. The fuselage is very narrow, with only just sufficient elbow-room for the two passengers, who sit facing one another. Although in the type F the wing is placed low, in order to get full advantage of the very strong girder at the root of the wing, it has been placed on top in the type K, mainly because the slightly greater aerodynamic efficiency thus obtained was desired, as the engine is of low power.

The engine fitted as standard to the type K is the Siemens five-cylinder radial of 60 h.p., but the seven-cylinder 80 h.p. Siemens can be fitted if desired. The type K is, like most German commercial machines, so designed that the passengers can step straight into the cabin as they would in a motor-car.



**JUNKERS AT GOTHENBURG:** 1 is a perspective view of the small school machine, type T, which is fitted with a six-cylinder vertical air-cooled Junkers engine. 2 details of the undercarriage. 3 the fan which is used for cooling the air-cooled engine. 4 access to the cockpit of the type T is gained through a triangular door. 5 a typical strut assembly.

The main data relating to the Junkers type K are: Engine, 60 h.p. Siemens; length o.a., 8 m. (26 ft. 3 ins.); span, 11 m. (36 ft. 1 in.); useful load, 250 kg. (550 lbs.); speed, 125 km. (77 m.p.h.).

Although in its general constructional features it is similar to other Junkers machines, the type T differs materially in that it is a parasol monoplane of the "open" type, intended for school work and sports purposes. The same tubular construction and corrugated sheet covering is used as on the other types, and the undercarriage is also similar in general design. The fuselage is of triangular section, or, more correctly speaking, of trapezoidal, as it does not quite come to a sharp edge on the lower corner. The sides have in consequence a distinct outward slope, so that the undercarriage telescopic struts are attached to the top longerons instead of the usual procedure of securing them to the lower.

The two occupants are seated tandem fashion in a common cockpit, entrance to which is by a triangular door, which forms, when closed and locked, part of the load-resisting structure. This door forms the subject of a sketch.

The wing, which is of usual Junkers tubular construction, is mounted in a somewhat unusual fashion so as to avoid members running diagonally across the sides of the cockpit and being in the way. The front spar is supported on each side by a "tripod" strut, while the rear spar has two struts on each side, one approximately vertical and the other sloping back so as to triangulate the structure and locate the wing in a fore-and-aft sense.

The most interesting feature of the Junkers type T is perhaps its engine, which is of Professor Junkers' design, and is unusual in that it is air-cooled, although being of the six-cylinder, vertical type. A fan mounted in the nose of the machine forces air back through ducts surrounding the cylinder heads and exhaust valves, so as to obtain forced draught past the hottest parts. At present the makers do not wish particulars published, as the engine is still in the experimental stage, but it may be stated that it is of 70 h.p. The type T can also be supplied fitted with 60 h.p. Siemens or 120 h.p. Mercedes engine.

Fitted with the Junkers 70 h.p. engine the data relating to the type T are: Length o.a., 7.5 m. (24 ft. 7 ins.); span 13 m. (42 ft. 8 ins.); useful load, 350 kgs. (770 lbs.); speed, 145 km. (90 m.p.h.).

(To be continued.)

With reference to the representation of dope manufacturing firms at the Gothenburg Exhibition, we are glad to be able to record that the only two firms showing were both British. The Titanine exhibit, which was not ready on the opening day of the Show, was arranged very soon after the opening, as confirmed in a letter from Mr. Ward, published on another page of this issue, and the Cellon exhibit was among one of the first in the Show to be ready.

#### THE GOTHENBURG AVIATION MEETING

So far, the news which has come through relating to the results of the "arrival competition," for machines starting from the Waalhaven aerodrome at Rotterdam on the morning of August 4, and due to arrive at Gothenburg aerodrome (Torslanda), with compulsory stops at Bremen (land machines) or Norderney (seaplanes) and Copenhagen (both types) is not very illuminating. It appears, however, that first prize was won by the Swedish aviator, Lieut. Soederberg, flying a Breguet. According to the reports published, Grase (Holland) was second, Thiedemann (Germany), third, Cobham (Great Britain) fourth, and Zimmerman (Germany) fifth. Sixth

and seventh respectively were Hemming and Bird (Great Britain), and last Kjellgren (Sweden), who was flying one of the "Tummeliten" biplanes with Thulin-Rhone engine. The weather was very bad, and the opening ceremony at Torslanda aerodrome had to be postponed until Sunday, July 5. As the award of marks for placing the competitors follows a rather complicated formula, it should not be taken for granted that the actual placing is necessarily as indicated above, the sequence given being that in which competitors arrived at Torslanda.

Unfortunately, several mishaps have marred the proceedings, some of the accidents being, however, to non-competitors. One German seaplane was forced to alight near Moens Klint, Denmark, and the pilot, Schultz, was drowned, the mechanic being saved. Last week a Swedish pilot, Lieut. Montgomery, was killed with his mechanic in a crash at Waalhaven. A Junkers seaplane broke a float in alighting in the Kiel Canal, and another German seaplane is reported to have smashed its propeller in landing at Copenhagen.

The de Havilland D.H.50, piloted by Cobham, flew from Stag Lane to Waalhaven on Thursday, August 2, carrying as passengers Mrs. Cobham, Admiral Mark Kerr, and Mr. C. C. Walker of the de Havilland Aircraft Company. On Monday, August 6, Cobham took up at Torslanda Sir Samuel Hoare, Admiral Mark Kerr and two of the sons of the Crown Prince of Sweden.

Major Hemming flew the D.H.37 in the competition, carrying as passenger Princess Loewenstein-Wertheim. He was back in time for the Aerial Derby, having covered something like 2,000 miles since Friday morning, but had to make a forced landing at Romford.

Capt. Norman Macmillan, flying a Bristol Fighter with Bristol "Jupiter" engine, made the flight from London to Gothenburg in one day.

#### A "Storm in a Teacup"

Much ado about nothing appears to have resulted from a chance private and personal remark dropped by Mr. C. R. Fairey when at Gothenburg, and as all sorts of rumours seem to have got about, it may be as well to allay all misapprehension by a brief statement of facts. What happened was that in the course of a personal chat with Captain Thor Lubeck of the Swedish Air Service, Mr. Fairey happened to remark on the small size of the tails fitted on Swedish and German machines, as compared with those commonly used by British designers. This remark, which was made purely as a statement of an impression, by a man who is very keenly interested in the subject of control at low speeds and large angles of incidence, having carried out a great deal of research in this direction, was certainly never made, as may be imagined, with the intention that it should be interpreted as an official view of the Chairman of the S.B.A.C. and to be published in the press. The remark was, however, apparently overheard by someone connected with the press, and was grossly misrepresented, thus not unnaturally causing considerable annoyance in Swedish aviation circles. As a matter of fact, Mr. Fairey mentioned the subject quite incidentally in a conversation with Captain Lubeck, and neither of the two gentlemen had the slightest idea that the remark would be published. It may be taken for granted that Mr. Fairey would never so far transgress as to overstep the mark by publishing an official criticism of Swedish machines, least of all in his capacity of Chairman of the S.B.A.C. It is unfortunate that a long-eared reporter (we have plenty of them here also) should have seized an opportunity to make much of what was, in reality, merely the friendly expression of a personal impression, but we are sure that after learning all the facts of the case our Swedish friends will understand, and realise that the whole incident has been given far more publicity than it deserves.

#### Cranwell Cadetships

The following are declared by the Civil Service Commissioners to be the successful candidates at the competition held in June, 1923, for admission to the Royal Air Force Cadet College, Cranwell, but their admission is conditional on their having passed a medical examination. In each case the names are in order of merit. A table of marks will be sent to each candidate as soon as possible:—

##### CRANWELL

McEvoy, T. N.	Penna, A. G.
Eaton, J.	Hordern, E. G.
Priestman, F.	Griffith, S.
Tristem, H. H. V.	May, F. M. V.

Moseley, W. M. A.
Keary, J. D'A.
Danbury, B. A. C.
Ricks, A. W. A.
Robinson, L. C. D.
Gillmore, A. D.
Lucas, G.
Cox, W. R.
Chamberlain, G. P.
Carr, T. H.
Anness, L. H.

Hammond, A. V.
Neil, A. D.
Kennedy, W. M. C.
Patch, H. L.
Storrar, R. C.
Harrison, J. A. P.
Beverley, H. G.
Bremridge, C. H. G.
Nelson, A. W. H.
Griggs, W. E.

KING'S CADET WHO HAS QUALIFIED  
Wilson, R. C.



# THE ROYAL AIR FORCE

London Gazette, July 31, 1923

## General Duties Branch

Flight Lieut. T. Henderson, M.C., A.F.C., is granted a permanent commn. in rank stated; July 31. H. D. Mitchelmore is granted short service commn. as Pilot Offr. on prob., with effect from, and with seny. of, July 18.

The following are re-seconded for a further two years' duty with the R.A.F. (Aug. 1):—

**Wing Commanders.**—N. G. Darnell (Capt., Bt. Maj., K.S.L.I.), C. Fraser, C.M.G., O.B.E., M.C. (Capt., N. Staffs R.).

**Squadron Leaders.**—G. G. Adeley (Capt., R. Ulster Rif.), A. R. Boyle, O.B.E., M.C. (Capt., A. and S.H.).

**Flight Lieutenants.**—G. C. Anne, O.B.E. (Capt., K.O.V.L.I.), T. O. Clogstoun (Lieut., R. Warwick R.), W. J. Dew, M.B.E. (Capt., Queen's Royal R.), R. Gambier-Parry (Lieut., R. Welch Fus.), J. P. H. Hayes (Capt., Lancs Fus.), W. Hodgson, O.B.E. (Lieut., D. of Wellington's R.), J. S. Holloway (Capt., Dorset R.), R. H. G. Neville, M.C. (Lieut., D.C.L.I.), I. M. Rodney (Lieut., Dorset R.), H. E. Tansley, M.C. (Lieut., Ches. R.).

**Flying Officer (Hon. Flight Lieut.)** J. E. Catherall, M.B.E. (Capt., R. Warwick R.).

**Flying and Observer Officers.**—C. C. Abraham (Lieut., K.S.L.I.), H. E. Y. Carroll (Lieut., 8th King's R. Irish Hrs.), W. E. (Brabazon) Dowling (Capt.,

E. Lancs R.), E. N. T. Edwardes (Lieut., R.F.A.), H. V. Robbins (L., Border R.), J. P. Walters (Capt., D.C.L.I.).

Flight Lieut. H. Cooch, A.M.I.E.E., is transferred to Reserve, Class B; Aug. 1. Flying Offr. M. B. Fitzgerald, M.B.E., is placed on ret. list on account of ill-health; Aug. 1. Flying Offr. G. L. Molloy-O'Neill relinquishes his short-service commn. on account of ill-health, and is permitted to retain rank of Lieut.; Aug. 1.

## Stores Branch

The following are granted permanent commns. in ranks stated for accountant duties:—Sqdn. Ldr. W. G. W. Prall; Aug. 1. Flying Offr. J. H. B. Carson; July 31.

## Medical Branch

Sqdn. Ldr. F. C. Jobson is transferred to Reserve, Cl. D2; Aug. 1.

## Reserve of Air Force Officers Class A

The following are granted commissions on probation in the ranks stated in the General Duties Branch:—

**Flying Officers.**—C. D. Barnard; July 17. J. F. A. Baker, E. A. Clear, M.C., P. B. Clews, B. Hackforth, F. E. Hills, A. J. P. Hytch, W. A. Mackay, D.C.M., W. H. Oatley, A. O. Bigg-Wither; July 31.

**Pilot Officers.**—W. R. Hyde, R. R. Rich; July 31.

## ROYAL AIR FORCE INTELLIGENCE

**Appointments.**—The following appointments in the R.A.F. are notified:—

### General Duties Branch

**Group Captain** Hon. D. J. Boyle, C.B.E., D.S.O., to R.A.F. Depot. 24.6.23 (Non-effective Pool), on transfer to Home Estab.

**Flight Lieutenants:** F. Workman, M.C., to Air Ministry. 1.9.23. R. F. S. Leslie, D.S.C., D.F.C., A.F.C., to H.M.S. "Argus." 21.7.23. J. Leacroft, M.C., to No. 8 Squadron, Iraq. 10.7.23. F. J. Watts, to School of Army Co-operation, Old Sarum. 30.7.23, on transfer to Home Estab. F. O. Soden, D.F.C., to R.A.F. Depot. 24.6.23, on transfer to Home Estab.

**Flying Officers:** C. H. Harrison, to No. 4 Sqdn., Constantinople Wing. 16.7.23. H. A. J. de S. Barrow, to R.A.F. Depot. 16.7.23, on appointment to a Temp. Commission on secondment from the Army. H. A. Hamersley, M.C., to R.A.F. Depot. 28.7.23. (Hon. Flt. Lieut.) L. S. Ingle, M.C., H. B. Holdway, R. E. B. Rose and H. A. J. de S. Barrow, all to No. 4 Flying Training School, Egypt. 20.7.23, for course of instruction. F. B. Lawrie, to R.A.F. Depot. 16.7.23, on appointment to a Short Service Commission. F. B. Lawrie, to No. 4 Flying Training School, Egypt. 20.7.23, for course of instruction. J. S. Wilkins, to Inspector of Recruiting, London. 6.7.23. J. G. Murray, to R.A.F. Base, Leuchars (No. 404 Flight). 1.8.23. H. W. Beck, to R.A.F. Base, Gosport. 24.7.23, for duty with H.M.S. "Eagle" on commissioning. F. A. Giles, to R.A.F. Depot. 24.4.23, on transfer to Home Estab. R. Jones, to R.A.F. Depot. 8.7.23, on transfer to Home Estab. W. Cay Williams, to R.A.F. Depot. 14.7.23, on appointment to a Short Service Commission.

**Pilot Officers:** R. Barrett, P. R. Stroud and J. T. Sykes, all to R.A.F.

Depot. 16.7.23, on appointment to Short Service Commissions. A. C. Addams, to No. 2 Flying Training School, Duxford. 17.7.23, on appointment to a Short Service Commission for course of instruction. H. D. Mitchelmore, to No. 2 Flying Training School, Duxford. 18.7.23, on appointment to a Short Service Commission for course of instruction. Y. W. Burnett, J. Catz, J. S. Dick, A. G. Everett, S. R. Sunnucks, G. J. Gaynor, R. Barrett, P. R. Stroud and J. T. Sykes, all to No. 4 Flying Training School, Egypt. 20.7.23, for course of instruction. W. F. Langdon, to No. 5 Flying Training School, Shotwich. 23.7.23, on appointment to a Short Service Commission for course of instruction.

### Stores Branch

**Flying Officer** H. J. Young, to Inland Area Aircraft Depot, Henlow. 1.8.23.

### Medical Branch

**Flight Lieutenants:** B. C. V. Pasco, to No. 207 Squadron, Constantinople Wing. 15.4.23. E. Bennett (Q.Mstr.), to No. 1 Stores Depot, Kidbrooke. 26.7.23.

**Flying Officers:** V. S. Ewing, M.B., to Research Laboratory and Medical Officers' School of Instruction, Hampstead. 19.7.23, for course of instruction. G. Clark, M.B., to Research Laboratory and Medical Officers' School of Instruction, Hampstead. 19.7.23, on appointment to a Short Service Commission for short course of instruction. B. Willsheer (Q.Mstr.), to R.A.F. Hospital, Cranwell. 2.8.23.

### Chaplains' Branch

Revd. P. T. Hutchinson, to R.A.F. Depot. 8.7.23, on transfer to Home Estab.

## IN PARLIAMENT

### Air Ministry

MR. ROSE on July 31 asked the Prime Minister if his attention has been called to the Second Report of the Select Committee on Estimates, which charges the Air Ministry with extravagance and lack of financial control and efficient organisation; and what measures, if any, does he contemplate to prevent the extravagance and correct the disorganisation?

MR. BALDWIN: Yes, Sir. I am aware that these charges have been made, but not how they are substantiated. I have impressed on all my colleagues the need for efficient financial control, but my information does not lead me to suppose that it is right to impute extravagance and disorganisation to the Air Ministry. I may add that the Air Council have the Report of the Committee under careful consideration.

### Washington Air Attache

SIR K. FRASER asked the Secretary of State for Air who is the present Air Attaché at Washington; what are his duties; when and by whom he was appointed; and whether, having regard to the necessity for rigid economy, he will consider the abolition of this office forthwith?

SIR S. HOARE: The present Air Attaché at Washington is Group Captain M. G. Christie, C.M.G., D.S.O., M.C. His duties are to keep His Majesty's Government informed of the development of aviation in all its aspects in the United States of America. He was appointed in April, 1922, by my predecessor in office, with the concurrence of the Foreign Office. As regards the suggestion in the last part of the question, I do not think that it would be in the public interest to terminate this appointment, which enables the Air Ministry, as no other arrangement would, to keep in constant and intimate touch with the progress of aeronautics in the United States of America.

### Aircraft Carriers Economies

MR. MOSLEY asked whether it is proposed to carry out the suggestion contained in the Report of the Select Committee on Air Estimates that the practice of having duplicate naval and Air Force engineers' shops, carpenters' shops, and armourers' shop and clothing stores on board carriers should be abandoned and joint shops for the two forces be established?

SIR S. HOARE: This and other suggestions for effecting economies in aircraft carriers have been for some time, and still are, engaging the serious attention of the Admiralty and the Air Ministry. It must, however, be pointed out that there are practical difficulties in the way of combining the aircraft workshops with the existing engineering shops on board, and this is also true of the other workshops referred to. I may add that I am most anxious to avoid the possibility of any unnecessary duplication.

### R.A.F.

MR. A. T. DAVIES, on August 1, asked the Secretary of State for Air whether his attention has been directed to the recently-reported extravagance in connection with the Air Force; whether it is proposed at an early date to reduce the war pay of officers and permanent officials in the service of the Air Board; and what arrangements are being made to effect economies?

SIR S. HOARE: In answer to the first part of the question, I am at present considering the Report of the Select Committee on the Air Estimates, to which my hon. friend no doubt refers. In answer to the second part, Royal Air Force officers are in receipt of the rates of pay fixed in 1919, but such

rates are due for revision in 1924, and the basis on which this should be done is now under consideration. I may add that officers' allowances, which are in lieu of issues in kind (rations, fuel and light, etc.), are frequently reviewed and adjusted to meet current costs. If by permanent officials my hon. friend refers to the civil servants at the Air Ministry, they are in receipt of war pay only in so far as, in common with other Civil Servants, they receive cost-of-living bonus, which is frequently revised. As regards the last part of the question, the rates of pay of the fighting services and of the Civil Service are at present under investigation by the Committee of which Sir Alan Anderson is chairman, and the question of effecting any economies in other directions that may be practicable is under constant review by the Air Ministry.

### Air Ministry Staff.

MR. G. JONES asked the Secretary of State for Air what is the name of the personal assistant to the Director of Civil Aviation; whether this gentleman ever served in a unit in His Majesty's forces during the Great War; how many of those employed by the Air Ministry served in His Majesty's forces during the Great War; and whether he will see that preference is given to ex-Service men in his Department when they are as efficient as non-Service men?

SIR S. HOARE: In reply to the first two parts of the question, the official referred to is Major H. Jones, who enlisted in the Royal Flying Corps in October, 1915, was posted to the War Office, was commissioned as 2nd Lieut. on the general list in March, 1918, and was subsequently appointed Staff Capt. in the Royal Air Force for personnel duties. In reply to the third part of the question, 1,042 ex-Service men were employed in the Air Ministry on July 1, 1923. In reply to the last part of the question, my hon. friend may rest assured that the fullest possible consideration is given to the just claims of ex-Service men.

### Navy, Army and Air Force Relationship. Government Decision

ON August 2, in answer to Capt. Benn upon the relationship of the Navy and the Air Force,

The Prime Minister said: The reference to the Committee which was appointed to consider national and Imperial defence included, among other things, the question of establishing some co-ordinating authority for the Navy, Army and Air Force, whether by a Ministry of Defence or otherwise, as well as the relations of the Navy and Air Force and the standard of strength of the Air Force for home defence.

The final Report dealing with the whole reference will be presented in the autumn, but in the meantime the finding of the Committee upon the strength of the Air Force for home defence has already been adopted by the Government and submitted to Parliament, and the Government are now able to lay before the House the Committee's recommendations, which they have also adopted upon the relations of the Navy and the Air Force and upon the co-ordination of the defence forces.

### I.—RELATIONS OF THE NAVY AND THE AIR FORCE.

This particular branch of the subject was referred to a special Sub-Committee consisting of Lord Balfour, a former First Lord of the Admiralty, Lord Weir, a former Air Minister—both of them being specially conversant with the

difficulties of inter-departmental relations—and Lord Peel, a member of the present Cabinet. Sixteen witnesses were heard before the Sub-Committee and 19 memoranda were submitted to it. The consideration by the Sub-Committee of the evidence, like the consideration by other authorities on previous occasions, have led them to a conclusion—a unanimous conclusion—in favour of the principle of a single Air Service.

The Admiralty were rightly concerned to maintain the absolute control over all the fighting equipment in the Fleet which is essential to its efficiency. They also urged that reconnaissance at sea requires the technical training of a naval officer. The Special Sub-Committee, while unable to meet the views of the Admiralty to the extent of destroying the principle of a single Air Service, consider that they have dealt by suitable provisions with these detailed objections, and, in particular, have secured for them the absolute control aloft and the professional reconnaissance to which I have referred. The reasons in favour of a single Air Service which have had weight with the Government may be summarised as follow:—

In the first place the Air Service, though it must have intimate relations with the other Armed Forces at sea and on land, and must be familiar with their requirements, differs in its conditions essentially from both. On the other hand, aircraft, whether they are flying above the sea or elsewhere, are, broadly speaking, governed according to the same main principles. In the second place, the whole science of air power is in a condition of rapid development. The application, therefore, of experience, both as to personnel and as to material, wherever that experience can be obtained, whether at sea or on shore, is vital to success in either case. We cannot afford to break up the lessons of this experience. In the third place, it is clear that, in certain contingencies, the shore-based air forces and the air forces of the fleet may be called upon to act together. Such common action may be very difficult without a unity of method in both Services.

Efficiency, therefore, prescribes common knowledge, common training, common material provision, and a common service. Economy points in the same direction. From this last point of view, the conclusion against the duplication of training schools and aerodromes and building plant is evident.

For these reasons, the conclusion of the Sub-Committee and of the main Committee that there should be a single Air Service must, in the opinion of the Government, be accepted, subject to the conditions which are necessary to meet the detailed objections urged by the Admiralty.

The recommendations of the Sub-Committee for this purpose are contained under 13 heads, dealing with liaison between the two Services, provision of material, inclusion in Naval Estimates of the charge for the Fleet Air Arm, integrity of the strength of the Fleet Air Arm, discipline and status of air officers and men when aloft, number and position of attached naval officers, and special reservation of air reconnaissances and spotting to the Navy. To these the main Committee have added a further recommendation, permitting to attached naval officers the retention of their uniform, a point which was strongly urged on behalf of the Admiralty.

If these recommendations be examined, it will be seen that, by their provisions, the permeation of each Service with a knowledge of the requirements of the other would be achieved, and the administrative difficulties dealt with, without destroying the unity of the Air Service. It is impossible without experience to pronounce a final judgment on these arrangements. The Government are, however, confident that both Services will do their utmost to make them successful.

In respect of this division of the subject, the Report of the Sub-Committee, together with a covering note of the main Committee, has been laid on the Table, and will be distributed immediately.

## II.—THE CO-ORDINATION OF THE DEFENCE FORCES.

Upon the recommendations of the Committee, the Government have decided as follows:—

It is undesirable and impracticable to supersede the Ministerial heads of the three Fighting Services by making them subordinates of a Minister of Defence. The alternative plan for an amalgamation of the three Service Departments is equally impracticable. On the other hand, the existing system of co-ordination by the Committee of Imperial Defence is not sufficient to secure full initiative and responsibility for defence as a whole, and requires to be defined and strengthened.

Under the existing system, the Committee of Imperial Defence—an advisory and consultative body—inquires into, and makes recommendations in regard to the issues of defence policy and organisation which are brought before it. The power of initiative lies with the Government Departments and with the Prime Minister. This system, though invaluable up to a point, does not make any authority, except the Prime Minister—who can only devote a small part of his time and attention to defence questions—directly responsible for the initiation of a consistent line of policy, directing the common action of the three, or any two of three Services.

The detailed provisions founded on these conclusions for strengthening the position of the Committee of Imperial Defence and its Chairman, and for securing the joint advice of the chiefs of the three staffs, is also contained in the Papers now being laid on the Table.

Capt. Benn: Does the inclusion of an item in the Navy Estimates for the provision of aircraft mean that the Navy will have an independent source of supply, or will have independent advice as to design?

The Prime Minister: I do not think so. But I should be very glad if detailed questions could be postponed, because the final details of this statement were only circulated last night.

Lieut.-Col. J. Ward: Is this organisation intended only for peace or also for war?

The Prime Minister: I hope it will be adaptable to both.

## CORRESPONDENCE

### BRITISH DOPE AT GOTHENBURG AERO EXHIBITION

[2068] We are rather surprised to see it stated in your issue of August 2 that a competing British dope is the only one represented at the Gothenburg Show.

Such is not the case. Titanine is being shown there at the stand of our agents for Sweden (see our advertisement in same issue), and, furthermore, we may add that Titanine is the principal dope used by the Swedish Government and is also largely used by the Governments of Norway and Denmark and is undoubtedly the most extensively used dope in the Scandinavian countries.

We shall be obliged if you will insert this letter so as to clear away any misapprehension that may exist as a result of your article.

TITANINE LIMITED,

August 4, 1923. S. W. H. Ward, Managing Director.

## SOCIETY OF MODEL AERONAUTICAL ENGINEERS (London Aero Models Association)

THE report of the meeting at Sudbury on Bank Holiday has not yet been received.

On Saturday, August 11, the competition for the "Felix Kelly" Challenge Cup will be held on Wimbledon Common, at 3.30 p.m. In addition a special competition (open) for cash prizes has been arranged to take place at 4.30 p.m. Any type of model aeroplane may compete, the rules for the competition being as for the "Gamage" Cup.

A. E. JONES, Hon. Sec.

## PUBLICATIONS RECEIVED

*Le Vol a Voile et l'Association Francaise Aerienne.* Association Française Aérienne, 17, Boulevard des Batignolles, Paris.

*The British Aircraft Industry.* Society of British Aircraft Constructors, Ltd., 1, Albemarle Street, London, W. 1.

*Revue Juridique Internationale de la Locomotion Aerienne.* July, 1923. Edition Aerienne, 4, Rue Tronchet, Paris.

*Department of Overseas Trade. Report on the Industrial and Economic Situation in Czechoslovakia, March, 1923.* By S. P. Elliott. London: H.M. Stationery Office, Kingsway, W.C. 2. Price 1s. 7d. post free.

*The Canadian Patent Office Record and Register of Copyrights and Trade Marks.* Vol. LI, No. 29. July 17, 1923. Patent and Copyright Office, Ottawa, Canada. Price 10 cents.

## Catalogue

*Gloucestershire Aeroplanes.* The Gloucestershire Aircraft Company, Ltd., Sunningend Works, Cheltenham.

## AERONAUTICAL PATENT SPECIFICATIONS

Abbreviations: cyl. = cylinder; I.C. = internal combustion; m. = motor. The numbers in brackets are those under which the Specifications will be printed and abridged, etc.

## APPLIED FOR IN 1922

Published August 9, 1923

- 7,061. LUFTSCHIFFBAU-ZEPPELIN GES. and K. ARNSTEIN. Rigid airships. (178,086.)  
7,722. S. E. SAUNDERS. Aeroplane wings. (200,553.)  
10,489. RAUL, MARQUIS OF PATERAS PESCARA. Helicopters. (178,447.)  
10,547. RAUL, MARQUIS OF PATERAS PESCARA. Helicopters. (178,453.)  
12,433. A. E. OWEN and E. COUPLAND. Sheet-metal compression members for aircraft. (200,628.)  
12,517. H. E. HODGSON. Aerial rescue device. (200,631.)

If you require anything pertaining to aviation, study "FLIGHT'S" Buyers' Guide and Trade Directory, which appears in our advertisement pages each week (see page xxiv).

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